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1993 River Bridge-west
of Ferndale,
Flathead County, 2
miles east of

MDT

Montana Department of Transportation

BR 9015 (11)
SWAN RIVER BRIDGE - WEST OF FERNDALE
FLATHEAD COUNTY
2 MILES EAST OF BIGFORK, MONTANA

(P.M.S. C#1132)

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U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
REGION 8

STATE OF MONTANA
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ENVIRONMENTAL ASSESSMENT

FOR

BR 9015 (11)
SWAN RIVER BRIDGE - WEST OF FERNDALE
FLATHEAD COUNTY
2 MILES EAST OF BIGFORK, MONTANA

(P.M.S. C#1132)

Submitted Pursuant to 42 U.S.C. 4332(2)(c) and
Section 2-3-104, 75-1-201, M.C.A.

by

______________________________________, DATE ____________________
MONTANA DEPARTMENT OF TRANSPORTATION

Reviewed and Approved for Distribution:

______________________________________, DATE ____________________
FEDERAL HIGHWAY ADMINISTRATION

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due
JAN 3 1 1996

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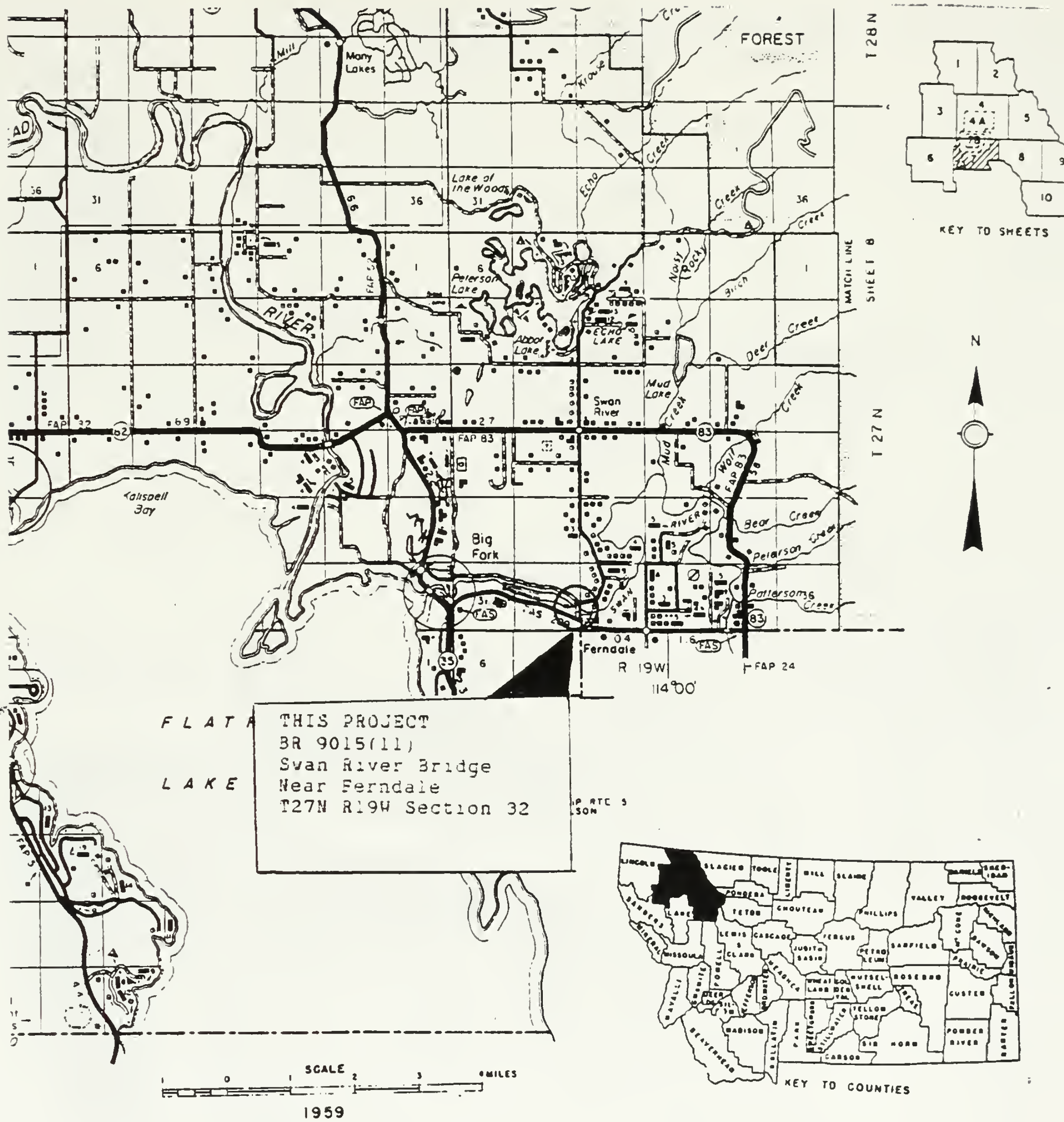
Abstract of the Environmental Assessment

This *Environmental Assessment* explores the environmental consequences of improving a river crossing. Specifically, the proposed improvement lies on a paved county road over the Swan River approximately 2 miles east of Big Fork in Flathead County, Montana. Project **BR 9015 (11)** proposes to replace or rehabilitate the existing 82-year old truss-type bridge. The proposed action is necessary because the existing facility warrants traffic, safety, and capacity improvements. Alternatives considered for this action include (A) take no action; (B) rehabilitate the existing structure; (C) replace the existing structure with a new 163-foot long bridge; and (D) replace the existing structure with a 290-foot long bridge.

Figure 1 - General Highway Map



THIS PROJECT
BR 9015(11)
Swan River Bridge
Near Ferndale
T27N R19W Section 32

SHEET 7 OF 10 MAP SHEETS AND 3 SUPPLEMENTAL SHEETS

GENERAL HIGHWAY MAP

FLATHEAD COUNTY

MONTANA

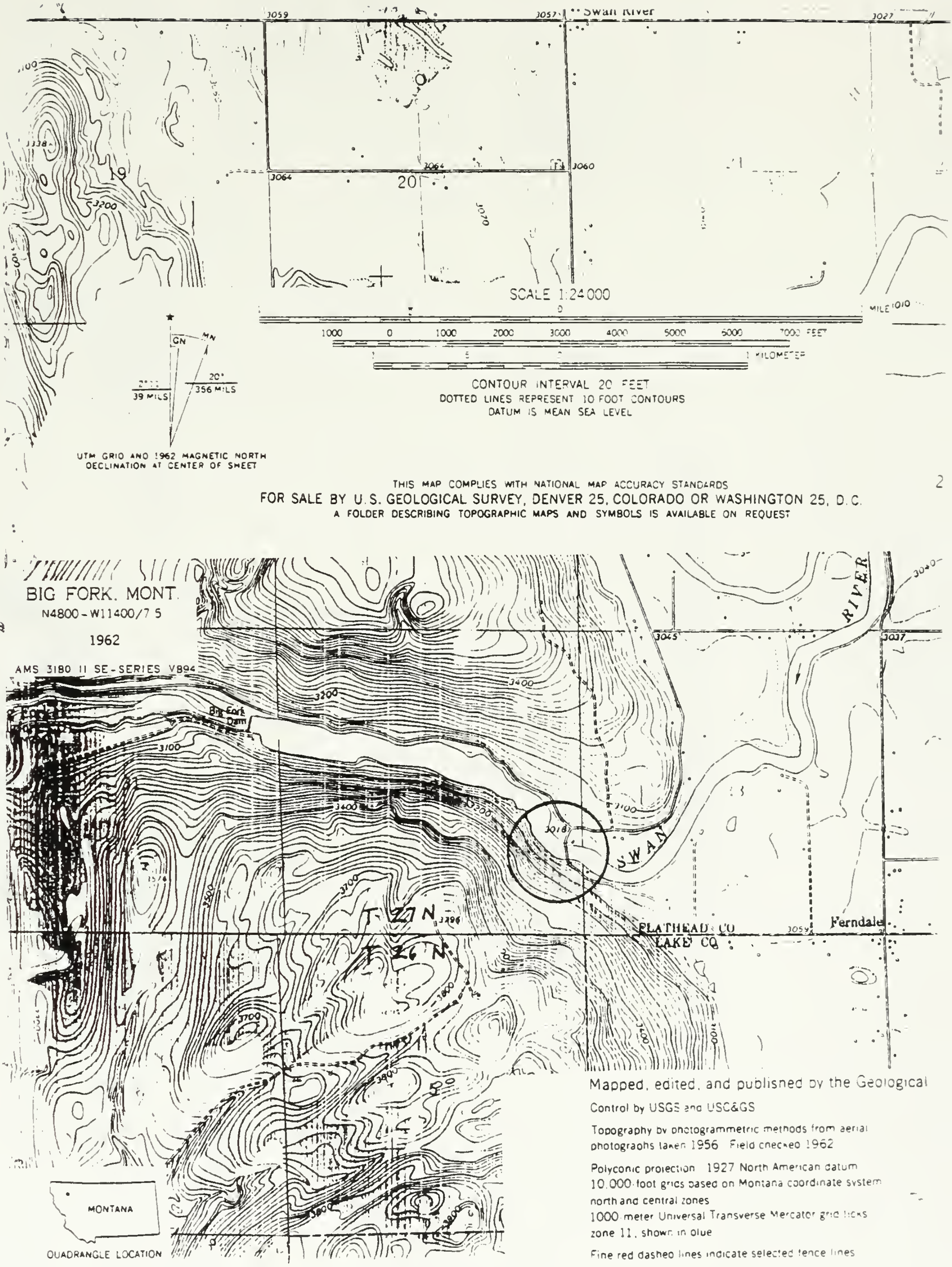

Swan River
SCALE 1:24 000
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 KILOMETER
CONTOUR INTERVAL 20 FEET
DOTTED LINES REPRESENT 10 FOOT CONTOURS
DATUM IS MEAN SEA LEVEL
GN
MN
20°
356 MILS
39 MILS
UTM GRID AND 1962 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET
THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER 25, COLORADO OR WASHINGTON 25, D.C.
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST
BIG FORK, MONT.
N4800-W11400/7.5
1962
AMS 3180 II SE-SERIES V894
Big Fork Dam
RIVER
SWAN
T 27 N
T 26 N
FLATHEAD CO
LAKE CO
Ferndale
MONTANA
QUADRANGLE LOCATION
Mapped, edited, and published by the Geological
Control by USGS and USC&GS
Topography by photogrammetric methods from aerial photographs taken 1956. Field checked 1962
Polyconic projection. 1927 North American datum
10,000-foot grids based on Montana coordinate system north and central zones
1000-meter Universal Transverse Mercator grid ticks zone 11, shown in blue
Fine red dashed lines indicate selected fence lines

Figure 2 - Topographic Map
Project area is Circled

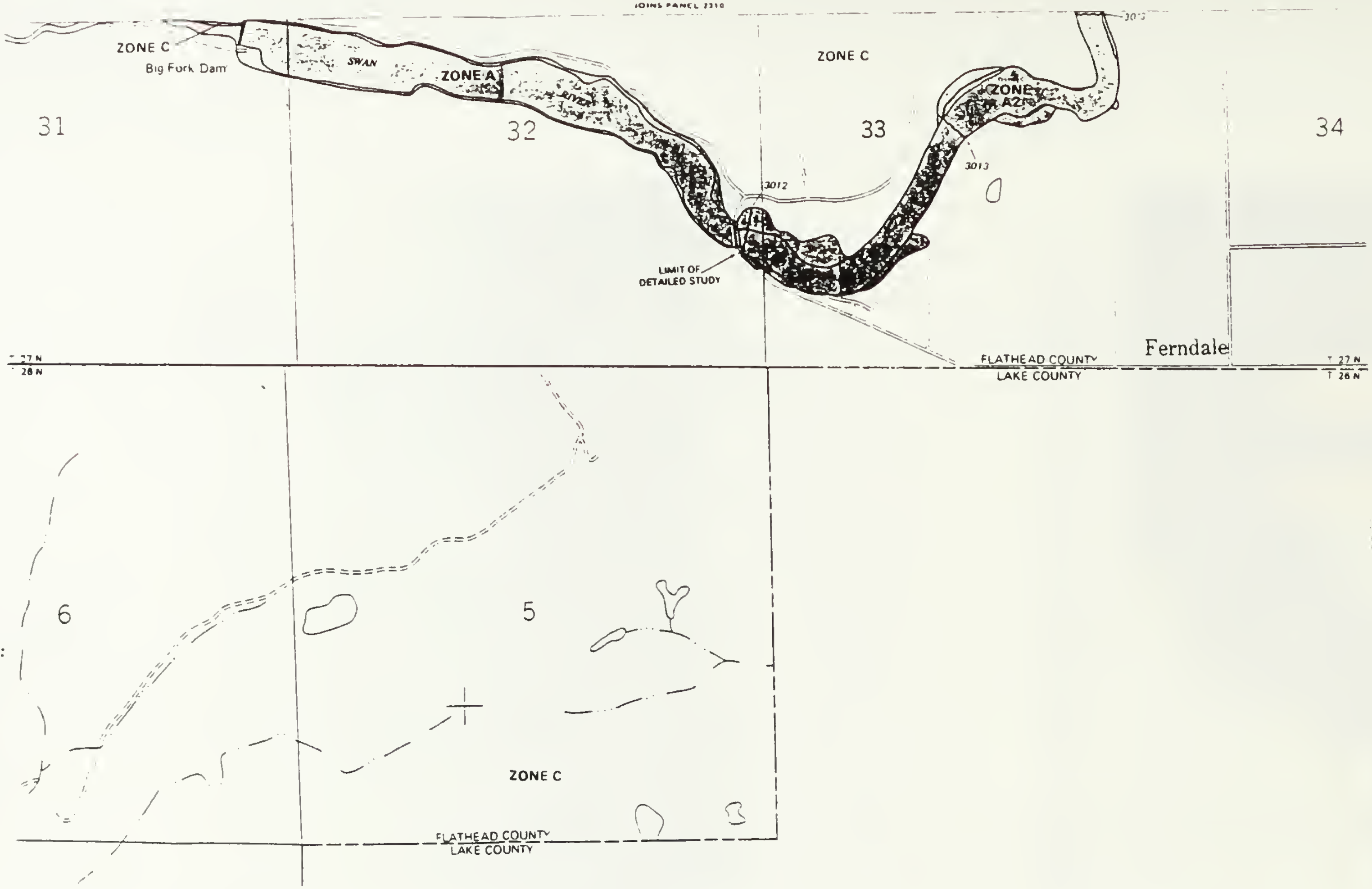


Figure 3 - Flood Hazard Boundary Map of General Area

100 Year Flood Boundary	ZONE B
Zone Designations	▨
100-Year Flood Boundary	ZONE B
500 Year Flood Boundary	――――
Base Flood Elevation Line With Elevation In Feet**	~~~513~~~
Base Flood Elevation in Feet Where Uniform Within Zone**	EL 987
Elevation Reference Mark	RM7 x
Zone D Boundary	— — —
River Mile	•M1 5

**Referenced to the National Geodetic Vertical Datum of 1929

EXPLANATION OF ZONE DESIGNATIONS

ZONE	EXPLANATION
A	Areas of 100-year flood, base flood elevations and flood hazard factors not determined
A0	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet, average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet, base flood elevations are shown, but no flood hazard factors are determined.
A1 A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction, base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100 year flood and 500-year flood, or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile, or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action), base flood elevations and flood hazard factors not determined
V1 V30	Areas of 100-year coastal flood with velocity (wave action), base flood elevations and flood hazard factors determined

NOTES TO USER

Certain areas not in the special flood hazard areas (zones A and V) may be protected by flood control structures.

This map is for flood insurance purposes only, it does not necessarily show all areas subject to flooding in the community or all planimetric features outside special flood hazard areas.

Coastal base flood elevations apply only landward of the shoreline shown on this map.

For adjoining map panels see separately printed Index To Map Panels.

INITIAL IDENTIFICATION

SEPTEMBER [illegible]

[illegible]

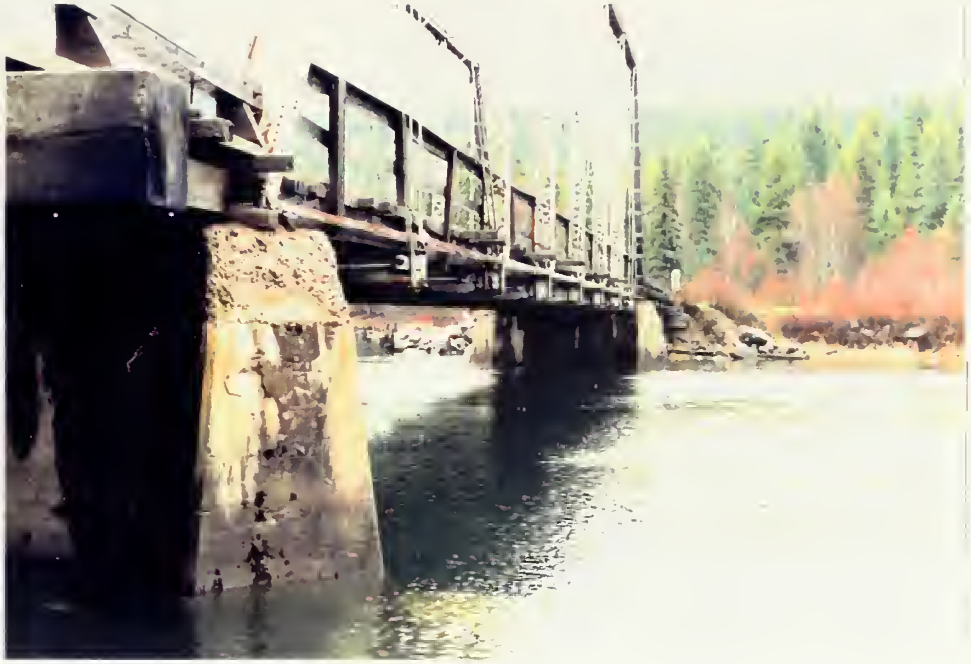


PHOTO #1 - The piers are in need of repair. The picture was taken facing north from the southwest corner of the bridge, April 19th, 1993.

PHOTO #2 - Standing on the north approach, looking up the channel of the Swan River, April 19, 1993. Because of the overcast conditions, the mountains were hidden from view in the background.

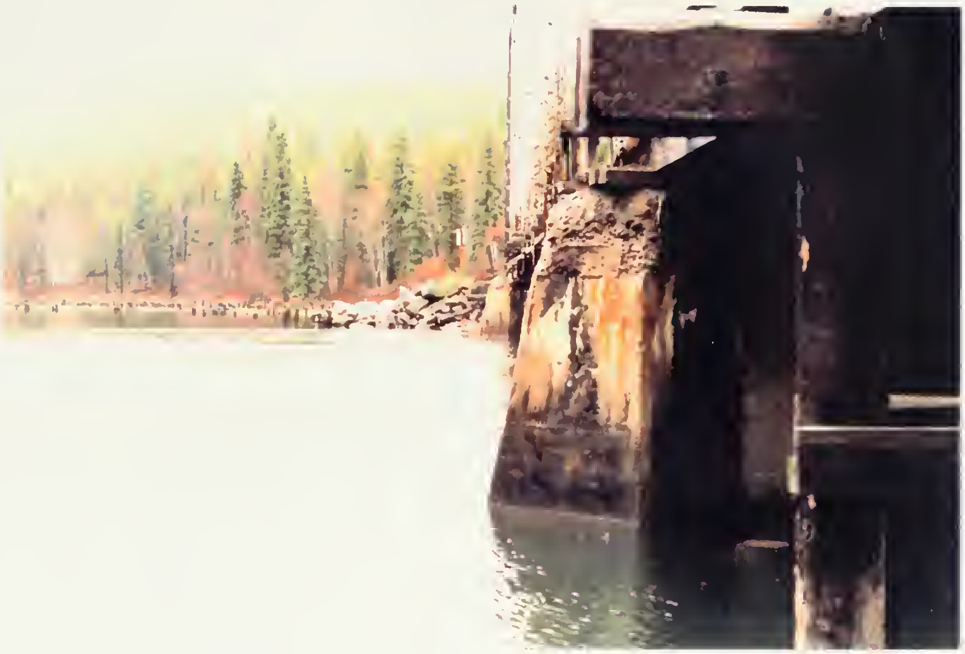


PHOTO #3 - Note the decaying state of the bridge. Picture taken from the southwest corner of the bridge looking north, April 19, 1993.

PHOTO #4 - From the north approach looking down the channel of the Swan River, April 19, 1993.

TABLE 1 - Summary of Swan River Bridge Improvements

ALTERNATIVES	SERVICE LIFE IN YEARS	NUMBER OF DRIVING LANES	LOAD RATING	IMPROVES SAFETY	REMOVES OLD BRIDGE?	IMPACTS FISHERY HABITAT?	POSSIBLE LEAD PROBLEM	COST IN THOUSANDS
(A) NO BUILD	< 5	1	3 TONS	NO	NO	NO	NO	$ 0
(B) REHAB	25	1	20 TONS	NO	NO	NO	YES	* >$ 463
(C) NEW-169′	75-100	2	36 TONS	YES	YES	YES	NO	$ 500
(D) NEW-290′	75-100	2	36 TONS	YES	YES	NO	NO	$ 690

For the discussions on the different Alternatives, see Part III of the Environmental Assessment.

*This estimate includes $95,000 to remove and properly handle the lead-based paint. This figure also includes the cost to repaint the truss-bridge. It does not include the sub-structure improvements which may or may not be necessary.

DESCRIPTION OF THE PROPOSED ACTION

A. Location of the Improvement

The Montana Department of Transportation in cooperation with Flathead County, is planning to improve transportation over the Swan River near Ferndale on a paved county road (off-system) 1.8 miles northwest of Ferndale, 2 miles east of Big Fork, Montana. The project is located in the Eastern ½ of the Southeast ¼ of Section 32 in Township 27 North, Range 19 West -- See the maps section.

B. Scope and Nature

This proposed action consists of improving the existing crossing for greater safety and adherence to highway standards either with a with a new structure or by rehabilitating the existing bridge. The existing bridge consists of one-lane of traffic on a wooden deck 16.5 feet wide supported by 2-concrete piers, timber approach spans, and a steel-framed pony truss.

The rehabilitation option includes new decking, removal of existing lead paint, repainting, and replacement of several members in the truss. New guardrail would also be included in the project placed at the bridge ends. Widening is not part of the rehabilitation.

The new bridge option includes a 24-foot wide roadway. Superstructure construction would be of concrete. Since river boating and floating occur in the area, a new structure would not provide less than existing vertical clearance between the bottom of the beams and the high water elevation of the Swan River. (The Rehabilitation option maintains the same vertical clearance as existing.) Building a new bridge would include the following additional improvements that could not be included in any rehabilitation project:

- ✓ The bridge deck would have two lanes, each 12 feet wide.
- ✓ A new structure's horizontal alignment would shift the centerline 10 feet downstream, parallel to the existing centerline. Consequently, the sharpness of the approach curves would be lessened thereby increasing the design-speed to 30 mph.

- ✓ The proposed new bridge would meet all design standards for off-system bridges.
- ✓ The trusses containing lead-paint would be removed from the environment.

C. Funding

To understand how the Swan River Bridge - West of Ferndale is funded, first a discussion about how all bridges in Montana are funded is in order. It is the state of Montana's responsibility to design, construct, maintain, and inspect **all** publicly owned bridges (this includes interstate, primary and secondary routes). Off-system bridges are owned by the counties in which they are located. This bridge is owned by Flathead County. The state of Montana inspects it at the request of the County. Also, as would be the case for the new bridge option, some county owned bridges are designed and built by the state. This role is performed by the Montana Department of Transportation (MDT).

The MDT receives money for bridges through a program funded by the Federal Highway Trust Fund. The amount of funds this trust provides for off-system bridges throughout the state is limited. To fairly distribute these funds, the MDT's allocation program uses a system that rates the bridge's ability to meet the transportation needs of the public based on **functional** and **structural** adequacy. A list is sent to the counties showing which bridges are eligible to receive these off-system funds. The counties then assign priorities based on their local plans and needs. From this list, the counties choose, or nominate, which bridges they want improved.

The rating mentioned above is called a Sufficiency Rating (SR). A new bridge will have a rating in the high 90's. Whenever a bridge's SR goes below 80, it becomes eligible to receive rehabilitation funding if it is **functionally obsolete or structurally deficient.** When a bridge's SR is less than 50, it can be nominated for replacement (See Part C - "Deficiencies" of the next section for a further discussion).

II. PURPOSE AND NEED

A. Description of the Existing Bridge and Location

The proposed Swan River bridge project is located in Flathead County, approximately 2 miles northwest of Ferndale and approximately 2 miles east of

Bigfork, Montana. The surrounding area is a mix of coniferous forest and pastureland, ranges from flat to rugged terrain used primarily for forestry, agriculture, and recreation. Residential, recreational, and logging roads are scattered throughout the area.

B. Road Use

The Swan River Bridge - West of Ferndale mainly carries residential/commuter traffic around Big Fork and Ferndale. This bridge also provides for the most direct route from Ferndale to the towns of Swan River and Echo Lake. The nearest major transportation routes are as follows: U.S. Highway 83 (also known as Federal Aid Primary route 83) is approximately 2½ miles due east and also 2½ miles due north of the bridge. U.S. Highway 35 (also known as Federal Aid Primary route 52) runs north and south through Big Fork, 2 miles due west. Highway 35 is the only route from Pablo to Kalispell on the East side of Flathead Lake. Highway 83 lies farther east of Flathead Lake serving access to many recreation areas from as far southeast as Salmon Lake off Highway 200.

A smaller arterial connects Highway 83 and 35 which is less than one-tenth of a mile South of the bridge site; Federal Aid Secondary route 209. Secondary route 209 is approximately 4 miles long starting in Big Fork, then going east through Ferndale and terminating at Highway 83.

There is a gravel road that parallels Secondary route 209 on the north side of the Big Fork Dam reservoir. County personnel say that joggers and bikers use this road for recreation.

C. Deficiencies

The Swan River Bridge - West of Ferndale is an 82-year-old steel truss bridge. It is **functionally obsolete and structurally deficient** having a sufficiency rating (SR) of 20.2 (Structure Inventory and Appraisal - 06/13/89). Therefore, as set forth by the MDT's Bridge Management Program's criteria for off-system bridge funding, it is eligible, and has been nominated by Flathead County, for improvement. This includes either rehabilitation or replacement. (For a discussion of the above terms, see the previous section entitled "Funding".)

The existing bridge is structurally deficient because the deck, wearing surface, railing, bearing devices, paint, piers, caps, and bracing are in need of serious repair. Timber members in the approach spans are rotting. Because of the deteriorating structure, the bridge has a posted safety load of 3-tons. See Photos beginning on page iv at the front of this document.

A standard load-rating for bridges with the types of traffic in the vicinity of this bridge is 36-tons. Because of the low safety rating, fire trucks, school buses, garbage and septic trucks, and any other larger-than-normal truck loads cannot cross the bridge. This fact puts people's lives and properties at risk. Furthermore operating costs for local services as well as other industries such as TCI Cable and United Parcel Service are increased.

The existing bridge is functionally obsolete because it has a 3-ton posting for safety where its use warrants a 36-ton loading. Additionally, the existing structure is 16.5 feet wide serving only one lane of traffic. The standard minimum width of a two lane bridge is 24 feet which serves two, twelve-foot lanes of traffic.

D. Traffic

A formal Traffic Analysis across the existing bridge has not been done. County personnel say that between 150 and 200 vehicles cross it daily. Records from Highways 83 and 35 show an annual increase of 8% in traffic volume yearly. From this data, it may be deduced that a 5-8% increase has occurred as well across this bridge. If current growth patterns perpetuate over the next 20 years, 300 to 400 vehicles are expected to cross the Swan River every day at this location.

Because of the sharply curved approaches to the bridge, speeding across the bridge is discouraged. However, because there is a downhill (greater than a 5%) grade approaching from Ferndale, some wintertime accidents have occurred. Brief descriptions of the accidents follow:

Over the last five years, two, single vehicle accidents have been recorded in the vicinity. One accident occurred approximately at the intersection where traffic turns north off of Route 209 (east-west road between Bigfork and Ferndale) on to the county road and continue to head north. The car was traveling west while failing to negotiate the left hand turn. The car rolled on its side. The car was within 150' of the intersection of Route 209 and where the county road heads north and crosses the Swan River Bridge. The injuries were not severe. This accident occurred September 3, 1988.

The other accident was an east-bound car on Route 209 approximately half of a mile to the west from the bridge approach. This accident occurred on February 28, 1988. The driver was driving on dry road. Melting snow and frost turned to ice as the temperature dropped in shaded areas. The vehicle lost control and rolled over a steep bank hitting a rock and tree. Injuries were not severe.

The new bridge alternative shifts the centerline of the road downstream 10 feet. By so doing, the sharpness of the approach curves are lessened thereby increasing maneuverablilty and safety. This proposal also raises the elevation of the bridge deck approximately 2 feet which reduces the steepness of the road coming from Ferndale.

III. ALTERNATIVES CONSIDERED

A. Introduction

Montana highway and bridge projects are developed to meet or exceed the minimum recommendations of AASHTO's (American Association of State Highway and Transportation Officials) design policies and guidelines. Since MDT is acting on behalf of, and in the best interest of Flathead County, this project was also developed to meet the MDT's highway standards. Considering the many major deficiencies in the existing bridge, substantial upgrading is required to meet these standards.

For the traffic projected in design year 2013, AASHTO recommends minimum roadway design standards of two, 12-foot lanes for a design speed of 30 mph. Three alternatives correcting or minimizing the operational and structural deficiencies of the crossing are discussed. Included in the discussions are the impacts associated with their construction. Also included is a discussion of the consequences of the "No-build" alternative, (Alternative (A)). The alternatives are presented as follows:

(A) The "No-Build";
(B) Rehabilitating the existing structure;
(C) Replacing the existing crossing with a new 163-foot bridge; and
(D) Replacing the existing structure with a new 290' bridge.

Additional information on comparison of alternatives is contained in Table 1 on page viii.

B. The Alternatives

Alternative (A) - The "No-Build"

The "No-Build" alternative (also known as the "do nothing" alternative) involves taking no action. All things remain as they are.

Pros
This alternative, does not directly cost anything. No new impacts would be introduced to the surrounding land and water. This implies no loss of stream habitats. No change in the visual opportunities **of** the bridge and **from** the bridge. No change from existing travel routes, etc.

Cons
By doing nothing, the Purpose and Need are not met. The existing 82-year-old structure is in disrepair and does not meet safety requirements. It is too narrow to allow two lanes of traffic. With the posted load rating of 3 tons, heavier legal loads are unable to cross the bridge. Approach curves remain sharp and the hill coming down from Ferndale makes the turn for the bridge treacherous.

While Alternative (A) does not directly cost anything as the no build option, continued liability to Flathead County will occur with the deteriorating condition of the bridge. Presently, the bridge has a safe load limit of 3 tons. There is the potential for the situation to become a burdensome problem. If the bridge were to collapse, the Big Fork Dam, a truly historic utility just one mile downstream, is put at risk by floating debris. Also, the potential for loss of life is a concern should a heavy load cross the bridge.

Cost of Alternative A - $ 0.00

Alternative (B) - Rehabilitation

Rehabilitation of the existing bridge involves salvaging usable parts from the existing structure while installing new members and pieces where needed. The original structure is likely to be left standing in place while under repair. Rehabilitating old bridges is becoming a common practice in America as her infrastructure ages; so much so that its science is approaching art. Historic bridges are symbols of times passed, serving as monuments to the history of the surrounding land and communities. However, this particular bridge does not qualify for listing on the National Register of Historic Places (State Historic Preservation Office - 06/08/88).

Pros
This alternative involves using the existing bridge length, alignment, and truss-configuration for the main spans. It includes replacement of the timber structures on the approach spans, stringers, and decking. The aesthetic value of the existing bridge remains intact. The proposed rehabilitation would increase the load rating to 20 tons.

Following a public meeting held in Big Fork, MT on January 11,1993, some comments on the proposed project were forwarded to the MDT stating that this was the favored alternative by some of the 35 local residents in attendance. The reason mentioned was that the intrinsic aesthetic value of the existing structure added to the scenic features of the area. One comment suggested that the existing structure is a "landmark" even though the structure does not qualify for a listing as a Historic Bridge under the criteria for listing on the National Register, or the National Historic Landmarks Program.

Cons
This alternative would not decrease the steep vertical grade coming from Ferndale. Nor would it provide two driving lanes. As stated earlier, the existing bridge does not meet AASHTO and the MDT design standards. Upon completion of the rehabilitation, the majority of the bridge would still be 82-years old. Structural considerations such as pin connections and pier foundations would need to be investigated. At best, the rehabilitation would extend the service life of the bridge 25 years. It is unlikely that the bridge would be salvageable after the 25 years added to its service life by this alternative.

Preliminary Cost Estimate - $463,000

Unresolved Issues
A complete estimate of the scope and total costs of rehabilitation have not been determined. A sub-surface investigation of the pier footings and foundations would need to be done if rehabilitation is chosen. Such investigations are costly. Historically, substructures comprise about one-half of the total costs in constructing bridges. With the new posting of a 20-ton limit on the rehabilitation, costs associated with upgrading the substructure may become exorbitant. It is unresolved as to whether or not this alternative will decrease the sharpness of the approach curves -- shifting the alignment is something that will be considered if this alternate is selected. Furthermore, the existing bridge is covered with a **lead-based paint.**

Lead is a toxic substance. The removal of lead based paint is regulated by the Environmental Protection Agency (EPA) and the Occupational Safety and Health Administration (OSHA). A complete understanding of the regulations and procedures that pertain to lead removal; ie. worker-health and environmental issues, including lead disposal, remains outside the scope of this assessment. For a more complete understanding of these and other related topics, a good resource is Kenneth A. Trimber's Industrial Lead Paint Removal Handbook, available from the Steel Structures Painting Council.

The removal of lead paint is very detailed and expensive. With the many volumes of regulations and procedures, little room is left for error. Before the bridge can be repainted with safer paint, the steel must be cleaned free of the lead-based paint which requires sand blasting or blast beading. The residue must be 100% contained. Also, the contractor and the State (and in this case the County since they own the bridge) must take measures to test the ground, the water table, and the river -- as well as a program for the people (includes respiratory surveillance, personal hygiene training and other medical surveillance programs), to monitor levels of lead before the project begins and once again upon completion. Once the lead is contained, it then must be sealed in special barrels and shipped to a permitted treatment and disposal facility approved by the Federal government, none of which exist in Montana. Without doubt, costs and risks to the environment increase rapidly. The added expense to clean the existing bridge free of the lead paint is at least $95,000.

In the event that this alternative is not chosen, the old bridge will still be coated with the lead based paint. Disposal of the bridge would not require that the paint be removed.

Alternative (C) - Build a new 163-foot Bridge

This alternative would reconstruct the existing crossing from below the ground and up; total replacement of the substructure and superstructure. This proposal would also re-align the approaches for safer curves.

Pros

The deck elevation would be raised approximately 2 feet higher than present which would slightly decrease the grade of the hill coming north off Route 209. The crossing would safely carry a 36-ton load and serve two 12-foot lanes of traffic. The horizontal alignment would shift 10 feet downstream which would provide for safer approach curves by decreasing their abruptness. This proposal meets or exceeds all AASHTO and MDT Design Standards. A new bridge would be made of concrete and have a 75-100 year service life requiring little maintenance.

Studies of the Swan River in relationship to the Big Fork Dam just 1 mile downstream indicate that the additional encroachment into the Swan River from the Bridge approaches would have a minimal effect on velocities and backwater elevations. From a hydraulic standpoint, changes in the velocities and flood stage elevations are insignificant.

Cons
A disadvantage of Alternative (C) is that the approaches would further encroach into the Swan River and could effect some fish habitats. The total proposed bridge length is 163 feet. This requires around 4000 cubic yards of material to be placed as new embankment. The existing structural length is 241 feet.

The MDFW&P has approved the Alternative C concept as proposed with requests for mitigation. Mutually agreed on mitigation, if required, will be coordinated with the MDFW&P when MDT applies for a Stream Protection Act (SPA 124) Permit.

A second negative aspect of this alternative is the loss of some trees that would be removed to construct the safer approaches. A complete discussion on this topic may be found in the Visual Impact Assessment attached in the Appendix. In summary, the referenced trees screen some of the man-made structures from the view of floaters, recreationists, and other people in the area.

Cost of Alternate (C) - $500,000

D. Alternative (D) - **Build a new 290-foot Bridge**

Building a 290-foot bridge is a fourth alternate. It would be longer than the existing structure which totals 241-feet with the existing approach spans.

Pros
This alternative offers similar advantages found in Alternative C. One additional advantage is building a longer bridge would require less fill material thereby encroaching less into the Swan River's fishery habitat. Secondly, the longer bridge would not change any of the hydraulic characteristics (water levels and velocities at flood stages) of the Swan at this crossing as compared to the existing structure.

Cons
The number one disadvantage of building a longer bridge is cost. The added superstructure's length would increase the cost of the grade crossing by roughly $200,000. The longer structure would similarly impact the trees referred to in the Alternate C.

Less obvious disadvantages of this alternative include increased roadwork. Also, the longer span would require thicker beams and, potentially, larger and thicker piers in the river. This increase in width translates into either a loss in free-board between the river and the bottom of the bridge for floaters or increased roadwork to raise the elevation of the bridge. The increased roadwork creates a greater chance of having to remove even more trees along Route 209 on the south side of the Swan River. However, raising the structure would prove beneficial by decreasing the steepness of the grade of the road coming from Ferndale. Furthermore, as with Alternate C, the aesthetic value intrinsic in the old truss bridge would not be preserved. Lastly, The longer spans would require more massive beams. This dictates that the deck elevation be higher to maintain existing free-board between the bottom of the superstructure and the river thereby pushing the whole structure farther out of the natural landscape setting and potentially encroaching further upon the scenery.

Cost of Alternate D - $690,000

IV. SOCIAL, ECONOMIC, AND ENVIRONMENTAL CONSEQUENCES

A review of all the social, economic, and environmental factors and resources known to be affected by the proposed improvements involved cooperation among the Montana Department of Transportation and Flathead County officials as well as input from the general public. Because of the rural location and small size of the project, urban impacts were not found in the study area, or, were so minor that detailed studies were not warranted. Only the impacts of potential concern are discussed in the remainder of this section.

Introduction

One of the issues concerning this proposed project is that of aesthetics -- the visual nature of the truss-bridge and how it fits into the landscape. The man-made structure "fits-in" to the natural environment because, as long as most people can remember, its been there. For the last 82 years, there has been a truss-type grade crossing at this location. Arguably, the possibility of change is the source of discomfort and controversy rather than its nature. If the new-bridge alternative is chosen, the aesthetics of the truss will be gone with the addition of new aesthetics offered by the concrete-beam type bridge.

Another related issue is the fear that an improved structure will facilitate development in the area. Home owners and other concerned individuals perceive that, due to the increase in accessibility, their area would automatically be developed. Development threatens their space and privacy. The discussion baits the question: Does the improvement of a transportation facility foster development or follow it?

The Big Fork area, along with the entire Kalispell and Whitefish area, is experiencing growth. The more desirable an area is, (ie., the more an area has to offer) the more likely people will choose to live there. As an area experiences an increase in population, demands on its transportation needs grow as well. Safe and efficient transportation must be provided. Commerce must be served.

MDT does not control which areas the public will deem "desirable" nor dictate patterns of growth or change. It does, however, engineer its facilities to meet change or growth in the most reasonable and practical way. A single landowner has control over development of his land, as regulated by City and County governments who control growth trends through planning and zoning practices.

A third issue with the proposed project is the embankment encroachment in Alternative C. Some 4000 cubic yards of fill material would be required for the construction of the approaches for this alternate. This new embankment would reduce the quality of fishery habitat in the immediate area. As stated earlier, the Montana Department of Fish , Wildlife and Parks proposed mitigation for these impacts. A further discussion of the encroachment associated with Alternative C is discussed later under Fish and Wildlife Impacts.

A. Social Impacts

The proposed improvement would provide a safer and more efficient facility for all road users. The construction of a wider bridge would allow traffic and pedestrians to move more quickly and safely over the Swan River.

A new bridge with a wider roadway would provide better access to residents and recreationists traveling in and out of the area. The construction would cause a temporary loss of the existing grade crossing. However, temporary detour routes will be provided with proper signing. The two-lane roadway in Alternatives C and D would improve safety for bicycle and pedestrian travel. Overall, the proposed project would provide safer, more dependable, year around, recreational and commuter travel to the area.

B. Economic Impacts

The upgraded bridge would provide a substantially safer and more efficient facility for all users.

Perhaps the greatest positive impact of the proposed project is the ability of the bridge to carry a load in excess of three tons. Because of the reduced load capacity of the existing bridge, garbage trucks, fire trucks, and ambulances, school buses, etc. cannot cross the Swan River at this location. The detour translates into longer travel times, increased fuel consumption and therefore more air pollution. In an emergency response to a fire or health problem, the time it takes to detour could lead directly to a loss of property or life.

The current structure has a vertical clearance over the roadway of 19' 6". While this is not a restriction that will cause many problems, the new bridge would have no height limitations at all.

The construction of the project would create jobs and the need for local services and supplies providing a short term economic benefit to the general area and to Big Fork. It is not anticipated that the project would cause any along term changes in the area's economy.

A strip of land may be needed from each of the lots adjacent to the bridge and highway alignment to accommodate the proposed bridge widening and construction if Alternate C or D is chosen. If C is selected, the edges of the bridge would move farther away from the current residences close to the bridge because of its shorter span. The opposite holds true for Alternate D with its longer span, ie. impacts on surrounding lands would increase. There are no buildings near the bridge and no acquisitions requiring relocation are anticipated. The loss of property from the tax roles would have a very minor impact on property tax revenues.

Efficiency of snow removal would be enhanced because of the 24-foot width found in Alternatives C and D. Wider shoulders provide more snow storage for plowing. There are Christmas-tree farms in the area. It is not anticipated that the proposed improvements would have any effect on the quantity of trees being harvested, bought, or sold. However, the proposed project would facilitate the travel of the trucks carrying the trees making the haul safer and also allow access into an area where they previously were unable to go because of the weight limit of three tons.

All lands needed from private ownerships for right-of-way on the project would be acquired by MDT in accordance with the Uniform Relocation Assistance and Real property Acquisition Act of 1970; Federal Law 91.646; the CFR, Volume 49, Part 25, and the applicable laws of the State of Montana. Compensation would be made at fair market value for the highest and best use of the land for all property acquired for right-of-way.

C. Environmental Impacts

1. Floodplains

Executive Order 11988, Floodplain Management, and FHWA floodplain regulations (23 CFR 650, Subpart A) require that the effects of the proposed action be evaluated to determine if any alternatives would encroach on the base floodplain. The base floodplain is defined as the area covered by water from the 100-year flood. The 100-year flood represents a flood event with the probability of recurring once every 100 years. Figure 3 on page iv shows the floodplain in the project area delineated on the Flood Plain Boundary and Floodway Maps provided by Federal Emergency Management Agency (FEMA). Flathead County administers this floodplain for FEMA, and a Floodplain Development Permit would be required for any encroachments which may occur due to construction.

History - The flood history of this bridge leaves no question that this area of the Swan River lies within a floodplain. However, the hydraulic activity at this site is almost completely controlled by the Bigfork Dam located approximately one mile downstream. The dam was constructed between 1901 and 1905 creating electricity for the area.

This bridge was originally composed of two, 16-foot timber spans on the north approach; a 152-foot steel pony truss; and one, 16-foot timber span on the south approach -- for a total length of 200 feet. This information was based on the original "as-built" plans of 1911. Apparently, the flood of record (a 75-year event) which occurred in 1974 forced the County to change the approach spans to keep the bridge in service.

What exists today is two timber approach spans on the north end, one being 23.0 feet in length and the other 24 feet-3 inches; the same 152' steel pony truss; and two timber approach spans on the south end, one is 21 feet-2 inches and the second is 20 feet-9 inches -- combining for a total length of just over 241 feet.

MDT studies show that the hydraulic characteristics of the Swan River would essentially remain the same with the reduced constriction from the added encroachments found in the 163-foot (Alternate C). Since the other options would have less impacts on the floodplain, only Alternative C is discussed here.

Impacts from Alternate C - The following hydraulic analysis performed by the MDT shows that impacts to the floodplain from Alternate C are minimal in nature. By demonstrating that the alternative with the most likelihood of causing significant impacts would not change the hydraulic characteristics of the Swan River, we can draw the conclusion that other alternatives would not have significant effects.

The minimum pool level that can be expected at the Bigfork Dam is the same as the spillway crest elevation of the dam, 3008 feet above sea-level. The thalweg (deepest point in the river channel) at the bridge crossing is about 2998 feet above sea-level. Thus, the dam creates a minimum water depth of about 10 feet at the bridge crossing. The bridge site could be considered part of the impounded water confined by the dam, or a reach of the Swan River. The velocity of the Swan River at the Base Flood (100-year Flow event flow rate of 9620 cubic feet-per-second (cfs)) is 3.4 feet-per-second (fps) with the existing bridge.

The total length of the existing bridge is 241-feet. To replace the existing steel truss bridge that has timber approach spans and nearly vertical wall abutments with a new bridge having sloping spill-through abutments and prestressed concrete beams would require a longer bridge than existing. A new bridge that requires no additional fill into the river, and thus causes no additional increase in backwater elevations, would be about 290' feet in length. With abutment slopes of 1.5:1, the new bridge could be shortened to the proposed 163-foot long structure with only a 0.2-foot* increase in backwater. {*NOTE: The figure of 0.4 was used in earlier correspondence and has since been changed to be 0.2 because of a second hydraulic analysis done by the MDT} The 100-year event velocity increased from 3.4 fps to 5.0 fps. For the 100-year frequency, this is a minimal increase. At the average flow of 1160 cfs (established from 66 years of USGS records), the velocity increase is negligible, from 0.6 fps to 0.9 fps. The flood of record at the gage site is 8890 cfs (1974).

In summary, the flow rate through the existing bridge at the 100-year event is 9620 cfs at a maximum velocity of 3.4 fps. The same flow of 9620 cfs would flow through the new bridge opening of Alternate C at 5.0 fps with an increase in backwater of 0.2 feet. The existing surface elevation **at the bridge** during a 100-year flood is 3013.2' compared to an elevation of 3013.4' (hence the increase of 0.2') for the design found in Alternative C for the same event. These figures show no significant impacts for Alternate C during the 100-year flood event.

There is a house 600 feet **upstream from the bridge**; its floor elevation is 3013.9'. With the existing structure, the 100-year flood elevation 600 feet upstream is calculated to be 3013.5'. With the proposed bridge in Alternative C in place, MDT water surface profile calculations show a 100-year flood elevation of 3013.6 at this location -- an increase of 0.1' over the existing structure and 0.3' feet below the house's floor elevation.

This proposed project would not promote or encourage development within this delineated floodplain, nor increase flood liability hazards from its construction. This proposed project is therefore considered to be in compliance with Executive Order #11988. Since the County administers permits concerning floodplains, Flathead County floodplain criteria will be met.

2. Water Quality

Construction of highway cuts and embankments, if left unchecked, would cause temporary erosion and siltation of the nearby river. Replacement of the bridge and or piers would cause temporary soil surface disturbances and short term siltation into the Swan River. Temporary siltation control measures, such as silt fences, would be utilized to minimize and control siltation. Work by the river during the construction would be allowed only during those periods specified by the resource agencies.

The MDT will develop a comprehensive erosion control plan following the Best Management Practices guidelines. The plan will also include site specific Best Management Practices (BMPs) prepared by the MDT. It will contain temporary and permanent erosion control measures which would be used during construction to control runoff and substantially avoid or minimize any pollution in the Swan River.

Contractors would be required to implement immediate temporary and permanent erosion control measures. The use of temporary seeding, mulching, mats, and other erosion control devices may also be required.

An Erosion Control plan would be submitted to the Montana Department of Health & Environmental Science's Water Quality Bureau in compliance with the Montana Pollutant Discharge Elimination System Regulations (ARM 16.20.1314) on this proposed project. The objective is to minimize erosion of disturbed areas during and following construction.

3. Wetlands

The following is taken directly out of the Biological Resources Report written by an MDT biologist, October 25, 1993; pages 13-14. A complete copy of this report can be found in the Appendix.

> "A wetlands survey was conducted and a Wetlands Finding prepared for the proposed project in May of 1992 (MDT 1992). A supplemental delineation was conducted in fall of 1993. Two wetlands occur in the immediate project area, and are described below.
>
> A MDT/MDFWP wetland site evaluation form for Site 2 is included in this report; the evaluation form for Site 1 was presented in the original Wetlands Finding prepared for the subject project and is not included here. However, summaries of wetland functions and values for each of the two sites, as determined using the MDT/MDFWP wetland site evaluation forms, are presented in Table 1. On a scale from 1 to 24, Sites 1 and 2 each rated a "16", or moderate to high value, in terms of functions and values (Table 1) when rated on the wetland site evaluation form.
>
> Site 1 occurs north of the bridge along the east side of the approach road. The wetland is an approximate 0.7-acre emergent/scrub-shrub marsh adjacent to the river which is dominated by cattail, willow, and red-osier dogwood, and is bordered by patches of Douglas-fir/western

larch/aspen forest. Habitat interspersion at Site 1 is excellent, providing habitat for a variety of wildlife species.

Site 2, an approximate 2.3-acre emergent shallow marsh, occurs north of the bridge on the west side of the approach road. The wetland is dominated by bulrush and sedge, and was flooded to depths of six inches to 1 foot during the fall survey. The site provides some fish habitat, and is likely used as a foraging area for wildlife such as osprey and great blue heron.

Approximately 0.07 acres of each wetland (a total of 0.14 acres) would be filled as part of the approach road widening proposed under Alternatives C and D. Wetland acres in the immediate project vicinity would be reduced from approximately 3 to 2.86 acres; a reduction of about 5 percent. This would not represent a significant loss to either wetland in terms of function or value.

Originally, it was estimated that 0.26 wetland acres would be impacted; however, through design modifications, including steepening slopes and installing guardrail on the approach road, projected wetland impacts have been minimized to the extent practicable under Alternatives C and D. No wetland loss would be anticipated under Alternatives A or B.

As no onsite mitigation opportunities have been identified, the 0.14-acre balance will be added to the MDT Wetland Ledger and compensated for when suitable mitigation site(s) are identified and approved by the Montana Interagency Wetland Group.

MDT will continue to pursue additional potential mitigation sites in the project vicinity in compliance with the Interagency Memorandum of Understanding: Management and Mitigation of Highway Construction Impacts to Wetlands in the State of Montana. All work concerning wetlands is in accordance with Presidential Executive Order 11990 stating that there will be no net loss of wetlands resulting from federally funded projects. The Wetlands Finding Report is included in the appendix."

4. Fish & Wildlife

A Biological Resources Report (BRR) was completed October 25, 1993. A copy of this report is attached in the Appendix. Page numbers are provided where text has been directly taken from that report. The Executive Summary is quoted here for brevity as follows:

> "The primary intent of the proposed project is to improve the existing bridge over the Swan River located approximately 1.8 miles northwest of Ferndale. The "build" alternatives include rehabilitation of the existing structure or construction of a new bridge. Sensitive biological resources present in the project vicinity include water marigold (a plant species of special concern) and an osprey nest. Neither of these resources should be significantly affected by any of the "build" alternatives. No significant impacts to general wildlife, vegetation, or fisheries communities (including westslope cutthroat and bull trout) would result from the project. It is the determination of this report that the project, under any of the 4 alternatives, is not likely to adversely affect the bald eagle, and will not affect the peregrine falcon, grizzly bear, gray wolf, or water howellia. Approximately 0.14 acres of wetlands would be filled under either of the new bridge alternatives. No onsite wetland or fisheries habitat mitigation opportunities have been identified.

> Implementation of Alternative A, the "no build" alternative, would cause the least impacts to biological resources over the short term, followed by (in order of increasing impact) Alternative B (bridge rehabilitation), Alternative D (new 290-foot bridge), and Alternative C (new 163-foot bridge)".

"The following mitigation/coordination measures are required:

- The contractor shall contact an MDT biologist to assess the overall status of nesting bald eagles in the project area prior to the onset of construction. (BRR, p.1)
- The location of construction-related activities, such as staging, batch plant, and borrow/gravel source activities, must receive prior review from an MDT biologist." (BRR, p.1)

Other mitigation/coordination measures include timing restrictions imposed on construction activities on the north approach road to minimize or avoid impacts to nesting ospreys. The following is an excerpt taken from the Biological Resources Report concerning the mitigation/coordination efforts of necessitated by the osprey nest nearby:

> "Several measures are under consideration that would to minimize or avoid impacts to nesting ospreys which could result from either of the bridge replacement alternatives (Alternatives C and D):
>
> Seasonal and/or weather-related timing restrictions imposed on construction activities on the north approach road may be effective in reducing disturbance to the nest to insignificant levels. Another option would be to remove the platform and nest structure from the pole (outside of the nesting season), and to relocate the platform and nest to a suitable tree, snag, or pole in the vicinity of the existing location, further from proposed construction activities. If the nest were moved, the original nest pole would need to be raptor-proofed to prevent the birds from rebuilding on the same pole prior to construction. The two power poles south of the nest pole would also require raptor-proofing to prevent the birds from nesting closer to the proposed construction area.
>
> By relocating the nest or causing the birds to nest further from the construction area, disturbance-related impacts caused by construction activities would be greatly reduced or eliminated. This would also likely benefit this and subsequent nesting pairs over the long term, as the newly constructed or relocated nest would likely be located further from current and future sources of human disturbance.
>
> These measures are currently under evaluation by MDT and USFWS biologists; a permit from the USFWS would be required to relocate the nest structure from the power pole.

Fisheries - Fish present in the bridge vicinity include warm water species such as northern pike and largemouth bass. Cold water species include rainbow trout, westslope cutthroat trout, mountain whitefish, and occasional brook trout, kokanee salmon, and bull trout. Overall, the reach in which the bridge occurs is primarily used for migration. (BRR, p.7) Other species such as the peamouth, northern squawfish, redside shiner, longnose sucker, large scale sucker, pygmy whitefish, slimy sculpin, and yellow perch range in occurrence from "abundant" to "uncommon" according to the MDFW&P (BRR, page 7).

Two species of concern, westslope cutthroat trout and bull trout, occur in the project vicinity. A petition to list bull trout as threatened or endangered was approved for further evaluation by the USFWS on May 17, 1993. No spawning has been documented. (BRR, p.8)

The fish ladder at Bigfork Dam was sealed in 1990 to prevent upstream migration of lake trout and lake whitefish to Swan Lake, preventing fish recruitment to the project area from below. There is some recruitment from above the bridge; primarily from rainbow trout, westslope cutthroat trout, and mountain whitefish. (BRR, p.8)

Impacts to fisheries from Alternate A - The "No-build" are speculative over the long term. Leaving the bridge as is would foster the continued deterioration of the bridge which could result in an eventual collapse. Collapse of the bridge would likely result in significant impacts to water quality. (BRR, p. 8)

Impacts unique to Alternate C center around the placement of the 4000 cubic yards of new embankment. Habitat at the bridge and in the vicinity is suspected to be used for spawning, rearing, and maturing by northern pike, and for rearing and migration by trout and mountain whitefish. It is estimated that between 0.2 and 0.3 acres of habitat would be lost under the new bridge abutments. Additional small amounts of habitat would be lost via the construction of the two piers.

Habitat similar to that which would be lost to construction is abundant in the immediate area; consequently, it is inappropriate to consider the affected habitat as especially unique, limiting , or critical to local fish populations. No significant hydrological impacts or effects on fish movement at the bridge are anticipated. The MDFW&P has suggested improving a floater take-out area at Bear Creek , approximately 4 miles upstream of the bridge on the Swan River as mitigation for the loss of fishery habitat (MDFW&P 1993). **It is determined that construction of the 163-foot bridge would not significantly affect fish habitat or activities in the project vicinity, including those of westslope cutthroat and bull trout.** (BRR, p.9)

Impacts from Alternative B - Rehabilitation, and Alternative D - Building a new 290-foot structure, on fisheries resources would be less than those potentially occurring under Alternate C as previously discussed. As no additional encroachment into the river at the bridge abutments would be required under Alternatives B or D, it follows that approximately 0.2 to 0.3 acres less fish habitat would be lost under these alternatives than would be lost under Alternative C. Since it is unknown whether rehabilitation would require substructure improvements, amounts lost to these potential improvements is also unknown, However, it is presumed that these losses in habitat would not exceed 0.1

acres. **It is determined that implementation of Alternatives B and D would not significantly affect fisheries or hydrological resources in the project area.**(BRR, p.10)

Best management practices for sediment and erosion control during construction would be employed in compliance with applicable water quality permits. Consequently, no significant long term turbidity-related impacts are anticipated.

Plants - Two plant species of special concern in the project are the water marigold (Bidens Beckii) and the western witchgrass (Panicum occidentale). Each of these are on the Montana Natural Heritage Program's "watch" list, which includes species considered too common to be listed as "sensitive" but for which information is lacking. However, each species has been assigned a state rank of S2. This ranking indicates that they are considered imperiled in Montana due to rarity of populations (6 to 20 statewide occurrences). Neither of **these plant species should be impacted by the proposed transportation improvement** (BRR, p. 4).

Conclusion - It is has been determined that the proposed action is not likely to adversely affect the bald eagle, and will not affect the peregrine falcon, grizzly bear, gray wolf, or water howellia. The specified mitigation measures found in the Biological Resources Report located in the Appendix of this document have influenced this conclusion. These measures are subject to subsequent review by the Endangered Species Office of the USFWS to determine compliance with the Endangered Species Act. Consequently, any substantive deviation from the proposed mitigation measures will require approval from that office (BRR, p.13)

5. Archeological and Historical

The MDT performed a Cultural Resources Survey. The survey yielded limited prehistoric materials. **No sites were identified.**

The Historic American Engineering Record (HAER) inventory of the Swan River Bridge near Ferndale, as well as the bridge at Bigfork, shows they were recorded as part of a historic bridge inventory in 1979 and 1980. The inventory lists the bridges as being classified in Category III by the Montana Department of Transportation and the State Historic Preservation Office (SHPO). This classification means that the bridges are ineligible for listing on the National Register of Historic Places. Clearance to construct the proposed project was received from SHPO on June 8th, 1988.

A private consultant specializing in historic bridge rehabilitations gave a slide show and held a discussion about the Swan River Bridge near Ferndale at a public meeting on February 20th, 1993, at 7:30pm at the Methodist Church in Bigfork. The consultant submitted his expert opinion on the state of the existing bridge, describing his recommendations and comments. During this meeting there was a discussion of the history of the bridge and the flood of 1974. A copy of the consultant's report is attached in the Appendix.

6. Noise

No existing noise sensitive areas have been identified in the vicinity of the proposed bridge improvement. A detailed noise analysis was not done and is not required for projects such as this involving no potential for impacts.

7. Visual

A formal Visual Assessment was done to evaluate the visual impacts of the existing aesthetic values in and around the Swan River bridge located west of Ferndale in Flathead County, Montana. This report may be found in its entirety in the Studies and Reports section of the Appendix. The Results and Conclusions portion of the Visual Assessment is included and reads as follows:

Results

The data suggest that the proposed bridge improvement would cause minor detriments to the aesthetic value and overall visual quality in the area. The data demonstrate that the farther one gets from the bridge site the less impacts it has on the visual qualities innate to the area.

The **majority** of the people seeing this bridge are those traveling east and west on Route 209 at more of a "macro" level -- when the bridge is in the distant middleground or part of the background. The view time of exposure to this group of people is short in duration.

The people **most frequently** seeing the bridge site are the visiting recreationists and/or the local residents coming off of Route 209 and crossing the Swan River. The view time of exposure for this group of people is short to moderate lengths of time (from 30 seconds to half a day). At this "micro" level -- where the bridge is more a part of the middleground and foreground -- the minor changes in the esthetics of the area would be more noticeable due to proximity. However, the changes outlined in this assessment are shown to be minor: or a one point difference on a seven-point scale in the over all Visual Quality.

Conclusions: Though the data suggest **no significant losses** in the visual qualities of the area from the proposed improvement of the Swan River crossing between Bigfork and Ferndale just off Route 209, it is anticipated that the residents in the area and of Bigfork would perceive a significant change. This change can be attributed to the absence of the steel truss that has been standing since 1911. The truss has become a signal to the westbound motorist informing them that Bigfork is 2 miles away. Also, for floaters, the bridge has been a signal to move toward the left bank and prepare for pulling into shore since this is the last and most easily accessible take-out before the Bigfork Dam. If the Alternative C is chosen, there will still be a bridge there, only a different looking one. It would be wider and safer and the finished deck would be a little higher, and some of the trees would be gone. Where there is now an 82-year-old steel-truss bridge, a new concrete stringer-type bridge would stand.

The controversy between the aesthetics of the proposed bridge and the existing bridge, is cognitive in nature -- what is **perceived** by the different viewers. Arguably, the fact of change is the source of visual discomfort rather than its nature or the change itself, for the perceived visual impacts are made up of the visual resource change combined with the viewer response. This report demonstrates that the visual resource change is minor while the viewer response varies with each viewer.

This assessment has provided an objective approach to quantifying characteristics which are difficult, at best, to qualify. This process is set forth in a manual entitled Visual Impacts Assessment for Highway Projects provided by the U.S. Department of Transportation's Federal Highway Administration and the Office of Environmental Quality. The goals of this manual are to provide a means of objectively quantifying that which is subjectively perceived through a qualitative analysis using the concepts of art and architecture involving vividness, intactness, unity, forms, lines, colors, and textures and other art and architectural techniques. The purpose of this manual is to provide a background of information in order to perform a step-by-step outline for a Visual Impact Assessment. For more information on how this assessment was prepared, consult the manual mentioned above.

8. Air Quality

This proposed project is located in an "**unclassifiable**" area of Montana for air quality under 40 CFR 81.327. As this type of project has no impacts on regional emissions according to the June 7, 1991 USDOT & EPA Interim Guidance For The Clean Air Act Amendments -- Section 6.2 and the Appendix -- a carbon monoxide (CO) analysis will not be necessary. Therefore, this proposed project complies with the 1990 Clean Air Act Amendments (23 U.S.C. 176 (c)) during "Phase I" of the "Interim Period".

9. Hazardous Materials

There are **no known** sources of hazardous waste in the project area or from the alternatives. During construction, accidental spills may occur from contractors operations and equipment. All contractors will be directed to take precautions to minimize the effects of construction operations and to prevent any leakage or spilling of fluids from their equipment. Should Alternative (B) be selected, the removal of lead-based paint would be treated as a hazardous material.

10. Construction

Bridge construction activities on the Swan River Bridge near Ferndale would cause temporary inconveniences to the local traveling public and recreationists for approximately one to two years after construction begins; less if the option to rehabilitate is chosen. The inconveniences include longer travel times, detours, complete closure, and additional noise and dust due to the heavy machinery. Contractors would be required to minimize construction noises by having mufflers on all equipment as required by state or local laws. They would also be required to control dust during construction operations by use of water or other approved dust suppressants.

Specific traffic control plans would be prepared by the MDT as part of the construction contract documents. Elements addressed in the traffic control plan include, but are not limited to the following:

-- Signing,
-- Timing of work on weekends and Holidays,
-- Timing of closures,
-- Limitations of work during winter, and
-- Prescheduling and notice of extended closures.

11. 4(f) Lands

Section 4(f) of the Department of Transportation Act of 1966 as amended provides for the protection of publicly owned parks, recreational lands, historical sites, and wildlife and waterfowl refuges. The proposed reconstruction would **not** impact any Section 4(f) lands.

VI. PERMITS REQUIRED

The following permits would be required before Alternatives B,C, and D could be built:

***401-**	All work will be in accordance with Section 319 of the Water Quality Act of 1987 (P.L. 100-4). Control of water pollution for both specific and non-point sources will be as described in the National pollutant Discharge Elimination System Permit (P.L. 92-500).
***402-**	This proposed project will require a Clean Water Act (33 U.S.C. 1251 -1376) - Section 402/Montana Pollutant Discharge Elimination System permit from the Montana Department of Health & Environmental Science's Water Quality Bureau.
***404-**	A Clean Water Act (33 U.S.C. 1251-1376) - Section 404 permit from the U.S. Army - Corps of Engineers (COE). The COE will make a determination whether an individual or nationwide permit will be appropriate for the proposed project.
***124-**	A 124 SPA Stream Protection Act Permit for compliance with MA 75-7-103(4) was submitted for approval to MDFW&P on June 30, 1992.
***MAA-**	A Memorandum of Authorization & Agreement also was approved by the MDFW&P.
***FEMA**	A Federal Emergency Management Agency floodplain permit, administered by the county with jurisdiction. (Not required for Alternate B - Rehabilitation)

***3A Authorization** A permit obtained by the contractor allowing short-term activity that may cause unavoidable short-term violations of state surface water quality standards for turbidity, total dissolved solids, or temperature. This permit is administered by the Water Quality Bureau, Department of Health and Environmental Sciences.

VII. COORDINATION AND CONSULTATION WITH OTHERS

A. Agency Coordination

In preparing this Environmental Assessment, the MDT coordinated and received comments from the following agencies and parties:

Montana Department of Fish, Wildlife and Parks

Flathead County Commissioners

Montana Department of Health and Environmental Sciences

Federal Highway Administration, Region #8

U.S. Fish and Wildlife Service

Natural Heritage Program, Montana State Library

U.S. Army Corps of Engineers, Department of Resources and Conservation

Montana State Historic Preservation Office, Historical Society

Friends of Wild Swan

B. Public Involvement

On October 15, 1987 a letter of intent was sent to the Daily Interlake and the Bigfork Eagle. The news releases also solicited comments on the proposed project.

A second new release appeared in the same newspapers December 23, 1992 and invited people to a public scoping meeting to be held at the Bigfork High School Music Room on January 11, 1993. The meeting offered an opportunity for an exchange of information with citizens interested in the project. About 35 local residents attended. There was some opposition to the project by individuals who thought that the project was not necessary or that the environmental impacts may be too severe.

On Saturday, February 20th, 1993, a meeting was held in Bigfork at the Methodist Church. The meeting was held and organized by private citizens who had a consultant perform an independent study of the bridge site. Notes from that meeting are included in the Appendix as is the report from the consultant. Note: the Correspondence section of the Appendix is ordered chronologically.

A formal public hearing will be held in which this Environmental Assessment will be presented to the public. Additional public comment will be received at that time, and will be evaluated to determine whether significant impacts would occur should any of the build alternatives be selected.

C. Distribution List of Document

U.S. Department Transportation
Federal Highway Administration
301 S. Park
Drawer #10056
Helena, MT 59626

U.S. Department of the Interior
Director, Office of Environmental Affairs
1849 C Street Northwest
Washington D.C., 202420 - 0001

Environmental Quality Council
Office of the Director
Capitol Post Office Box 215
Helena, MT 59620

Jack G. Thomas
Montana Dpt. of Health & Envir. Sciences
Water Quality Bureau
Cogswell Building
Helena, MT 59620

U.S. Department of the Interior
Fish & Wildlife Service
301 South Park
P.O. Box 10023
Helena, MT 59626

Flathead County Commissioners
Flathead County Courthouse
Kalispell, MT 59901

U.S. Department of the Interior
Chief, Envir. Impact Assessment Program
U.S. Geological Survey, MS 760
432 National Center
Reston, VA 22092

State Clearinghouse
Lieutenant Governor's Office
Capitol Building
Helena, MT 59620

Montana Department of Natural Resources
& Conservation
1520 East 6th Avenue
Helena, MT 59620 - 2301

Montana State Library
1515 East 6th Avenue
Helena, MT 59620 - 1800

Steve Kelly
c/o Friends of Wild Swan
127 West Main #F
Bozeman, MT 59715

Save the Swan River Committee
C/O Tammy and Gary Riecke
P.O. Box 363
Bigfork, MT 59911

Abba Liechtenstein, P.E., DR. Eng.
26 Trafalgar Road
Tenafly, New Jersey, 07670

VIII. EXHIBITS

[Plans, details, etc. will be included here when an alternative is selected and developed]

IX. APPENDICES

See the following sections separated by yellow paper.

Appendix A: List of Preparers

Edrie L, Vinson, Chief
Environmental and Hazardous Waste Bureau
Montana Department of Transportation
P.O. Box 201001
Helena, MT 59620-1001

Dale W. Paulsen
Federal Highway Administration, Region #8
301 S. Park
Drawer 10056
Helena, MT 59626

Appendix B: Correspondence

Karl Helvik

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
215 NORTH 17TH STREET
OMAHA, NEBRASKA 68102-4978

REPLY TO
ATTENTION OF

November 18, 1993

MASTER
FILE
COPY

U.S. Army Corps of Engineers
1520 East 6th Avenue
P.O. Box 202301
Helena, Montana 59620

NOV 19 1993

cc: Tom Barnard
Jim Hill
Jim Weaver
Karl Helvik

Gordon Stockstad, Acting Chief
Environmental & Hazardous Waste Bureau
Montana Department of Transportation
2701 Prospect Avenue
Helena, Montana 59620-9672

Dear Mr. Stockstad:

This is in reference to my meeting with Mr. Karl Helvik on November 16, 1993, concerning the Swan River Bridge Environmental Assessment (Project BR 9015(11). We discussed Corps of Engineers' letter of comment dated September 22, 1993.

The updated Environmental Assessment (EA) and aerial photography provided by Mr. Helvik addresses our comments identified in our September letter. Concerning our comment number 5, "The EA indicates that in lieu of the fishery impacts that would occur for alternative C.....mitigation in the form of improving Bear Creek FAS...is not acceptable mitigation". Our comment remains the same pertaining to this item. It is not known at this time whether mitigation will be required for adverse impacts associated with any of the alternatives. It appears the only alternative which may require mitigation would be Alternative C, construction of a new 163-foot bridge. It also appears that the aquatic areas that would be filled, however small, have characteristics that could justify mitigation. Although more costly, it appears that Alternative D, construction of a new 290-foot bridge, would be the "least damaging practicable alternative". If required, and if the cost of mitigation for Alternative C is added to its total project cost, total project costs for alternatives C and D would be somewhat closer. Mitigation, again if required should be located on the same river system within a general range from the downstream dam to approximately 3 or 4 miles upstream from the project area.

The proposed project does not appear to have impacts that would significantly affect the quality of the human environment and thus require the preparation of an Environmental Impact Statement. The proposed project could possibly be authorized under a Nationwide Permit in accordance with 33 CFR Part 330, Appendix A. Alternatives should be considered that would reduce the amount of fill material that would be discharged into the aquatic ecosystem (for road construction, abutments, piers). Thank you for this opportunity to review your updated Environmental Assessment and consideration of our comments. We would appreciate being notified of any public meetings that may be held in relation with this proposed project.

Sincerely,

douglas d. mcdonald

Doug McDonald
Project Manager
Helena Regulatory Office

CF: FWP, Wipperman
USFWS, Hazelwood
DHES, Thomas
DSL, Norris
EPA, Blodnick

DEPARTMENT OF HIGHWAYS

TED SCHWINDEN GOVERNOR
2701 PROSPECT

STATE OF MONTANA

HELENA MONTANA 59620

May 25, 1988

Kathy Huppe
State Historic Preservation Office
225 North Roberts
Helena, MT 59620

BR 9015(11)
SWAN RIVER, FLATHEAD COUNTY

The Swan River bridge is located on a county road that connects with FAS 209 about 2 miles east of Big Fork. The bridge was constructed in 1911 by A.Y. Bayne and Company, and has been recorded as SHPO #223, priority 3. It was not considered eligible for listing on the National Register.

From the bridge, facing upstream or east, one can see the stone filled crib log structures that probably served as foundations for piers for this or an earlier bridge that was situated with a considerable skew. The historic record makes no mention of a previous structure or the moving of this one.

In 1964, FAS 209 was reconstructed. It passes the project area along a steep north facing slope. Construction entailed cutting into the slope to form the road bed, and the spoil material was piled down slope (north) toward the river. Just west of the bridge the slope was so precipitous as to require riprap, which was formed of the large boulders made available from blasting to construct the road. In short, the entire south side of the project area has been altered by road construction and by bridge relocation.

The north side of the Swan is shallow, swampy during low water, and the county road that follows it is cut from the south slope of a hillside. An approach road to the bridge was constructed of fill materials, probably those resulting from road construction along the slope.

I walked the south side project area in intervals ranging from 10 to 25 meters, depending on the accessibility of the terrain. Visibility was poor due to heavy undergrowth, deciduous trees (probably willow and aspen) and cedar. Ground surface was bare along a narrow driveway or dirt road leading upstream to a private cabin, and in the vicinity of a boat unloading road next to the bridge. Near the boat facility was an informal camping area and a fire pit indicated recent and frequent use. Near here, the old bridge approach would have been located, and I speculated that the site had been filled in

---

many years before. Mitzi Rossillon dug a test pit here east of the bridge, 5 meters south of the water's edge, and 20 meters northeast of the center of the driveway. She found disturbed stratigraphy, 5 cm of humus; 5 cm of ash, 4 cm orangish brown silty sand, a smear of dark brown with high organic material; more orangish silt the next 2-3 cm, but slightly lighter in color; and then grayish sandy silt, probably insitu material. The natural river's edge would have been very steep here, and most likely it was unsuitable for human habitation.

The county road connecting the bridge to FAS 209 is cut in the spoils of the secondary road construction. I walked the cut bank and observed large boulders intermixed with fill. A few broken bottles were in the ditch. No artifacts of earlier vintage were identified. Still on the south side, and to the west of the bridge, the hillside to the water's edge was steep, and large boulders cluttered the surface. Mitzi Rossillon scraped the duff from the surface about 2 meters from the county road. No artifacts were observed in the grayish dirt. Ten meters further west, she cleared away the duff, and again found no artifacts. I am completely convinced that the area was totally disturbed by previous construction work.

I walked to the north bank, crossed the bridge and confirmed that the approach road to the bridge was fill material. I returned along the opposite side of the road and again was sure only fill material was visible in the project area.

I recommend that you give clearance to proceed with this project as in compliance with Section 106 of the Historic Preservation Act. If you have any questions, please call and discuss them with me so that we can expedite the review process. Thank you.

EDRIE VINSON, ARCHITECTURAL HISTORIAN
ENVIRONMENTAL UNIT

EV:cm:2/y

Enclosures

cc: S. C. Kologi
N. H. Rognlie
K. F. Skoog
V. D. Borden

State Historic Preservation Office
Montana Historical Society
Mailing Address: 225 North Roberts • Helena, MT 59620-9990
Office Address: 102 Broadway • Helena, MT • (406) 444-7715

June 8, 1988

Ms. Edrie Vinson
Architectural Historian
Environmental Unit
Montana Department of Highways
2701 Prospect Avenue
Helena, MT 59620

Re: Swan River Bridge
BR9015(11)

Dear Edrie:

Since no significant cultural resources were identified as a result of your survey for the project referenced above, bridge replacement should be able to proceed without impacting Register eligible properties.

Thank you for consulting with us.

Sincerely,

Kathy

Katherine M. Huppe
Historical Survey Reviewer

File: MDOH/Swan River Bridge

Date Recd. Preconst. 6/13/88

Act	Info	MAIL ROUTE	Attach	Initial
		30		
	✓	Eng. Specialties		
		31 Contract Plans		
		32 Loc. Road Design		
	✓	33 Environment		
		34 Hydraulic		
		35 Surfacing Design		
		36 Traffic		
		37 Pub. Hearing		
		38 Photogrammetry		
		39 Consultant Design		
		Borden		
	✓	File		

FISH AND WILDLIFE ENHANCEMENT
FEDERAL BUILDING, US COURTHOUSE
301 S PARK
P O BOX 10023
HELENA MT 59626

FWE-61130-Billings
M.17-FHWA (Swan River Bridge)

January 13, 1992

Ms. Edrie L. Vinson
Montana Department of Highways
2701 Prospect Avenue
Helena, Montana 59620

Dear Ms. Vinson:

This responds to your January 2, 1992 letter concerning Montana Department of Highways Project No. BR 9015(11), Swan River Bridge near Ferndale (C#1132), and requesting identification of the threatened and endangered species that should be considered in connection with this project. Your letter also invited other comments we may have.

The Federally-listed endangered and threatened species which occur or may occur within the project area are the bald eagle (*Haliaeetus leucocephalus*), peregrine falcon (*Falco peregrinus*) and grizzly bear (*Ursus arctos horribilis*). Pursuant to Section 7 of the Endangered Species Act of 1973, as amended, the Federal Highway Administration, as the responsible Federal agency, must determine if the proposed actions may affect these endangered species. If you or the Federal Highway Administration determine that any of these species may be affected, it will be necessary to initiate formal consultation with this office. The following information and recommendations may aid you in that determination.

Both peregrine falcons and bald eagles may occur in the area as spring and/or fall migrants, and bald eagles occur as winter residents. We are not aware of peregrine falcon or bald eagle nest territories in or near enough to the project area to be of direct concern, but several bald eagle pairs nest in the general vicinity.

While we do not foresee any substantive issues with the proposed project with regard to the bald eagle and peregrine falcon, any power lines in the vicinity, if not properly constructed, could pose electrocution hazards for these species. To conserve these species and other large raptors protected by Federal law, we urge that any power lines that may need to be modified or reconstructed as a result of the project be raptor-proofed following the criteria and techniques outlined in the Raptor Research Report No. 4, "Suggested Practices for Raptor Protection on Power Lines - The State of the Art in 1981". A copy may be obtained from:

Jim Fitzpatrick, Treasurer
Raptor Research Foundation
Carpenter St. Croix Nature Center
12805 St. Croix Trail
Hastings, Minnesota 55033.

Considering the specific nature and location of the project, we do not believe there will be any project related impacts to the grizzly bear.

We have no information, at present, on the potential for the project to adversely impact wetland habitats. However, the March 2, 1987 Field Review and Planning Report accompanying your January 2 letter indicates there are adjacent wetlands. We assume a wetland inventory and impact assessment has or will be completed in accordance with the 1989, "Interagency Memorandum of Understanding: Management and Mitigation of Highway Construction Impacts to Wetlands in the State of Montana". We urge completion of any needed wetland mitigation in full accordance with that Memorandum of Understanding.

We appreciate your efforts to consider and conserve fish and wildlife resources, including threatened and endangered species. If you have questions regarding this letter, please contact Mr. Rob Hazelwood of our Helena office (406) 449-5339.

Sincerely,

John G. Wood
For
Dale Harms
State Supervisor
Montana State Office

JGW/jf

cc: Suboffice Coordinator, USFWS, Fish & Wildlife Enhancement (Billings, MT)
Rob Hazelwood, USFWS, Fish & Wildlife Enhancement (Helena, MT)

"Take Pride in America"

DEPARTMENT OF HIGHWAYS

STAN STEPHENS, GOVERNOR
STATE OF MONTANA
2701 PROSPECT AVE.
HELENA, MONTANA 59620

January 2, 1992

Dale Harms, Montana State F&WE Supervisor
U.S. Fish & Wildlife Service
Federal Building 301 South Park
P.O. Box 10023
Helena, MT 59626

Subject: BR 9015(11)
Swan River Bridge Near Ferndale
Control # 1132

In accordance with Section 7(a) of the Endangered Species Act, the Montana Department of Transportation is requesting a list of threatened or endangered species in the vicinity of this proposed project. This information will be used in the preparation of the project environmental document. Any other pertinent comments you may have at this time would also be appreciated.

Enclosed is a copy of the Pre-Program Field Review and Planning Report describing the proposed project and two copies of the project location map showing the project location.

If we have not received a reply within 30 calendar days, we will assume your agency has no information necessary for inclusion in our environmental document.

If you have any questions, please contact this office at (406)444-7632.

Edrie L. Vinson, Chief
Environmental and Hazardous Waste Bureau

ELV:LDM:D:ENV:44.si

Enclosures

cc: File

FISH AND WILDLIFE ENHANCEMENT
FEDERAL BUILDING, US COURTHOUSE
301 S PARK
P O BOX 10023
HELENA MT 59626

FWE-61130-Billings
M.17-FHWA (Swan River Bridge)

January 13, 1992

Ms. Edrie L. Vinson
Montana Department of Highways
2701 Prospect Avenue
Helena, Montana 59620

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Raptor Research Foundation
Carpenter St. Croix Nature Center
12805 St. Croix Trail
Hastings, Minnesota 55033.

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We appreciate your efforts to consider and conserve fish and wildlife resources, including threatened and endangered species. If you have questions regarding this letter, please contact Mr. Rob Hazelwood of our Helena office (406) 449-5339.

Sincerely,

John G. Wood
For Dale Harms
State Supervisor
Montana State Office

JGW/jf

cc: Suboffice Coordinator, USFWS, Fish & Wildlife Enhancement (Billings, MT)
Rob Hazelwood, USFWS, Fish & Wildlife Ennancement (Helena, MT)

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MONTANA NATURAL HERITAGE PROGRAM
1515 East Sixth Avenue
Helena, Montana 59620
(406) ~~444~~-3009

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JAN 24 1992
ENVIRONMENTAL BUREAU

January 23, 1992

Edrie Vinson
Department of Transportation
Environmental Section
2701 Prospect Avenue
Helena, Montana 59620

BR 9015 (11) C# 1132
Swan R - W of Ferndale

Dear Edrie:

In response to your request for information, we checked our databases for information on sensitive species in the vicinity of 14 proposed highway projects. To summarize the results:

Musselshell River - 1 mile east of Roundup (Control #1482):
No records

Musselshell river - 2 miles east of Ryegate (Control #1496):
No records

11 Miles SE of Libby (Control #1789):
No records

Swan River Bridge near Ferndale (Control #1132):
Two plant species of special concern occur within this project area. Beck water-marigold occurs in water up to 1 meter deep in the river just below the bridge along the north side of the river. It was last observed here in 1982 and is likely still present. This is one of six locations known for the plant in Montana. Western witchgrass occurs in a wet meadow along the river just above the bridge. It was last observed at this location in 1985 and is also likely still present. This is one of eight locations known for this species in Montana. Occurrence records are attached (pp. 1 and 2).

Judith River - 6 miles NW of Moore (Control #1494):
No records

Ross Fork Creek - 5 miles NW of Moore (Control #1495):
No records

Montana Department
of
Fish, Wildlife & Parks

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Region One, 490 N. Meridian
Kalispell, MT 59901
(406) 752-5501
FAX: (406) 257-0349
Ref: DV219.92
January 23, 1992

Edrie L. Vinson, Chief
Environmental and Hazardous Waste Bureau
Montana Department of Highways
2701 Prospect Ave.
Helena, MT 59620

RE: BR 9015(11) Swan River Bridge near Ferndale, Control #1132

The fishery on this portion of the Swan River contains warmwater gamefish species including northern pike and largemouth bass, and coldwater species including rainbow trout, brook trout, cutthroat trout, and bull trout. Habitat alteration should consider all species and migration of them up or downstream from the project site. More specific information will be provided when preliminary design is completed.

Wildlife concerns related to this proposed project will largely depend upon the scale of the project. In the immediate vicinity of the bridge currently are wetlands and riparian habitats (already greatly influenced by the dam) and an osprey nest. River otter occupy the swan flow above the dam and some winter use by bald eagles has been documented in the same area. Potential impacts upon these resources can be better evaluated as the scope of the project becomes better defined.

Thank you for the opportunity to comment.

Sincerely,

Dan Vincent
Regional Supervisor

Copies to Knapp
& Wipperman
1/29/92

/ss

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Montana Department
of
Fish, Wildlife & Parks

1420 East Sixth Avenue
Helena, MT 59620
June 9, 1992

MASTER FILE COPY

CC: J. Weaver
D. Lovely
J. Hill

Ms. Edrie L. Vinson
Environmental and Hazardous Waste Bureau
Department of Transportation
2701 Prospect Avenue
Helena, MT 59620

Swan R.
BR 9015(11)

Dear Edrie:

9015(11)
an R.

F22-2(10)3
WOT

We have reviewed the wetlands assessments submitted by your office. The Swan River Bridge assessment looks complete. The photo documentation of wetland sites 2, 3 and 4 on the Plentywood-West project are poor and offer little in terms of site characteristics. This reconstruction project is located within the North East Montana Prairie Pothole Joint Venture project area and there are numerous opportunities to participate in wetland mitigation. We recommend that you coordinate more closely with Mark Sullivan the project coordinator in Plentywood on the different mitigation opportunities, including the contractor incentive.

44-1(3)14
lier-E

The wetland mitigation recommendation for the Valier-East project needs some additional documentation before it will be approved. This information was requested during the site inspection. This includes the surface acreage of the basin that will be less than six feet in depth and in particular in the one to three foot zone; the total projected surface acreage of the impoundment; and the projected cost of the project.

82-1(2)0
omers-E

The Somers East project design appears to have fairly significant impacts to some important wetland types. The large open water pothole is quite important to diving ducks, especially nesting redheads. The seasonally flooded wetlands including the borrow ditches provide some of the only winter habitat for ring-neck pheasants. Their value as nesting habitat is obviously negated when burned in the spring as the photos document. Obtaining satisfactory mitigation for these losses will be important and will require close cooperation between the agencies.

Note

We have one recommendation to make relative to the mitigation efforts underway. More work needs to be accomplished at the technical level in terms of tightening up the mitigation packages before they are brought to the full committee and reported in the ledger. If there are different options on the table for a particular project, they need to be discussed, and if the proposal is conceptual in nature, it should be so stated. We look forward to discussing these concerns at the meeting next week.

Sincerely,

Jeff Herbert
State Waterfowl Coordinator

609.2

Montana Department
of
Fish, Wildlife & Parks

1420 East Sixth Ave.
Helena, MT 59620

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July 23, 1992

cc - Core Drill
Dist 1

Jeff Ryan
Dept. of Transportation
2701 Prospect Ave.
Helena, MT 59620

"Core Drill"

RE: Permit No.MDT-29C-92
BR 9015(11)
Swan River Bridge
CN #1132

Relative to the Montana Stream Preservation Act, the Department has completed our review of your proposed project on the Swan River. The project is approved as long as the following special conditions are incorporated in the final plans and specs:

1. In-stream work shall be completed in an expeditious manner to avoid unnecessary impacts to the streams,

2. Other construction activities performed in the stream and immediate vicinity, shall be conducted in a manner to reduce in-stream turbidity along with minimizing disturbances to the streambed and/or streambank,

3. Extra precautions shall be taken to preserve existing riparian vegetation,

4. Streambank and adjacent areas disturbed by the construction activity shall be protected with temporary erosion control measures during the construction activities. These areas shall be reclaimed with long term erosion control measures and revegetated immediately after construction,

5. Discharge of core material and sedmiment into the river will not be allowed.

___ This project will cause a significant increase in turbidity, therefore, the Department of Health and Environmental Sciences, Water Quality Bureau, should be contacted for an exemption from the surface water quality standards. (3-A Authorization)

_X_ This project will not cause significant turbidity and a 3-A Authorization will not be required.

Ken Chrest

Ken Chrest
Stream Protection Coordinator
Fisheries Division

drg
C: Edrie Vinson
Region 1 - Vashro
Water Quality Bureau

MDT Montana Department of Transportation
2701 Prospect Avenue
Helena, MT 59620-9726
Stan Stephens, Governor

MASTER FILE COPY

August 10, 1992

Kenneth R. Chrest
Stream Protection Act Manager
Dept. of Fish, Wildlife & Parks
1420 East Sixth Avenue
Helena, MT 59620

Subject: BR 9015(11)
Swan River Bridge
Control No. 1132

In your recent SPA approval for the subject core drill, you required in condition No. 5 that all drilling material, cuttings, etc., not be allowed to enter the river. Would you consider dropping this restriction?

The total amount of material will be approximately three cubic yards composed primarily of clean sands and gravel. The drilling will occur from a barge and this much material cannot be contained on the barge without numerous trips to shore. Although this would be possible, we would like to avoid this effort. We would appreciate your response as soon as possible.

Edrie Vinson

Edrie L. Vinson, Chief
Environmental & Hazardous Waste Bureau

ELV:JTR:D:ENV:63.kmc

cc: James T. Weaver, P.E., District Engineer-Missoula
Core Drill
Gordon J. Stockstad, Supervisor, Resources & Permitting Section
File

Montana Department
of
Fish, Wildlife & Parks

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AUG 19 1992
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cc: J. T. Weaver
J. Hill
G. L. Larson
D. S. Johnson
J. J. Mayhew
Jim Walth

1420 East Sixth Avenue
Helena, MT 59620
August 17, 1992

Jeff Ryan
Environmental & Hazardous Waste Bureau
Dept. of Transportation
2701 Prospect Ave.
Helena, MT 59620

RE: MDT-29C-92
BR 9015 (11)
Swan River Bridge
CN# 1132

We have reviewed your request to eliminate item No. 5 of our SPA core drill permit. It was decided that the material should be removed from the river as required in the original authorization. The core drill material should not be deposited within the ordinary high water mark and not in a wetland.

Ken Chrest

Ken Chrest
Stream Protection Coordinator
Fisheries Division

C: Edrie Vinson
Region 1 - Vashro
Project File

Montana Department
of
Fish, Wildlife & Parks

1420 East Sixth Avenue
Helena, Montana 59620

MASTER FIL
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August 28, 1992

Ms. Edrie L. Vinson, Supervisor
Environmental Unit
Dept. of Transportation
2701 Prospect
Helena, MT 59620

Dear Ms. Vinson:

RE: BR 9015(11)
Swan River Bridge
Control #1132

We have reviewed your above-mentioned proposed project for providing a new bridge on a county road approximately three miles east of Big Fork

The Department of Fish, Wildlife and Parks knows of no Section 6(f) of the Land and Water Conservation Fund Act or Section 4(f) of the 1966 Department of Transportation Act impacts which would occur as a result of the proposed bridge replacement.

Thank you for the opportunity to comment. We appreciate your cooperation.

Sincerely,

Mary Ellen McDonald
MARY ELLEN McDONALD
Program Officer
Operations Bureau
Parks Division

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AUG 31 1992
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cc: Dan Vincent, R-1 Supervisor
Dave Conklin, R-1 Park Manager

ks

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MDT Montana Department of Transportation
2701 Prospect Avenue
Helena, MT 59620-9726

Stan Stephens, Governor

MASTER FILE
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September 2, 1992

Kenneth R. Chrest
Stream Protection Act Manager
Dept. of Fish, Wildlife & Parks
1420 East Sixth Avenue
Helena, MT 59620

Subject: BR 9015(11)
Swan River Bridge
MDT-29C-92
Control No. 1132

We would like to change the core drill time period for the subject project to extend through October 9, 1992.

Edrie Vinson
Edrie L. Vinson, Chief SJS
Environmental & Hazardous Waste Bureau

ELV:JTR:D:ENV:53.dlw

cc: James T. Weaver, P.E., District Engineer-Missoula
Terry L. Yarger, P.E., Geotechnical Engineer
Gordon J. Stockstad, Supervisor
Resources & Permitting Section
~~File~~

Montana Department
of
Fish, Wildlife & Parks

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SEP 9 1992
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MASTER FILE
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cc: J. T. Weaver
cc: DAVE HA

1420 East Sixth Avenue
Helena, Montana 59620
September 8, 1992

Jeff Ryan
Dept. of Transportation
2701 Prospect Ave.
Helena, MT 59620

RE: MDT-29C-92
Swan River Bridge
BR 9015(11)
CN #1132

Your request for core drill extension is approved.

Sincerely,

Darlene Gilchrist
for Ken Chrest
Stream Protection Coordinator
Fisheries Division

drg
C: Edrie Vinson
Region 1 - Rumsey
Project File

Montana Department
of
Fish, Wildlife & Parks

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OCT 26 1992
ENVIRONMENTAL BUREAU

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cc. Jim Hill
Jim Wea

1420 East Sixth Avenue
Helena, Montana 59620
October 22, 1992

Jeff Berglund
Dept. of Transportation
2701 Prospect Ave.
Helena, MT 59620

RE: BR 9015(11)
Bridge over Swan River
CN #1132

We have some concerns with the Swan River bridge plans which shows a road encroachment into the river channel.

Jack Thomas and I are scheduled to go to Kalispell on November 5. One of our stops will be to review this proposed project. If a representative from your agency would like to accompany us, please let me know.

Sincerely,

Ken Chrest

Ken Chrest
Stream Protection Coordinator
Fisheries Division

drg
C: Region 1 - Vashro

Montana Department
of
Fish, Wildlife & Parks

RECEIVED
NOV 24 1992
ENVIRONMENTAL BUREAU

1420 East Sixth Avenue
Helena, MT 59620
November 18, 1992

cc: Jim Weaver
Jim Hill

Jeff Berglund
Environmental & Hazardous Waste Bureau
Dept. of Transportation
2701 Prospect Ave.
Helena, MT 59620

RE: Swan River
Bridge Proposal
BR 9015 (11)
CN# 1132

The Region's comments for this project are enclosed. We do not want the new structure to encroach any further into the river for the reasons stipulated in Scott's memo.

Ken Chrest

Ken Chrest
Stream Protection Coordinator
Fisheries Division

C: Region 1 - Vashro/Rumsey
Project File

Montana Department
of
Fish, Wildlife & Parks

RECEIVED
NOV 18 1992
FISHERIES DIV.
DEPT. FISH WILDLIFE & PARKS

Helena

INTEROFFICE MEMORANDUM

Ref:
November

TO: Ken Chrest

FROM: Scott Rumsey SR

SUBJECT: Swan River Bridge Proposal BR 9015(11), Control No. 1132

The proposal calls for reducing the existing bridge span of about 240 feet to 163 feet. This means 77 feet of fill will need to be placed on either side of the river to meet this requirement.

The existing bridge presently encroaches substantially on the Swan River. Additional encroachment is not recommended because of the following impacts:

1. Fill placement in a wetland and aquatic environment;
2. Alteration of river flow patterns and hydraulics due to encroachment;
3. Alteration and fill of spawning and rearing habitat for northern pike and juvenile trout.

/ss

MDT Montana Department of Transportation
2701 Prospect Avenue
Helena, MT 59620-9726

Stan Stephens Governor

December 8, 1992

CC:
Hydraulics

Ken Chrest, Stream Protection Coordinator
Fisheries Division
Montana Department of Fish, Wildlife, and Parks
1420 East 6th Avenue
Helena, Montana 59620

Subject BR 9015 (11)
Swan River Bridge Near Ferndale
Control No. 1132

Enclosed is a copy of the Hydraulics Study concerning the length of the bridge. In it, you will find what we believe to be a sound design length of 163 feet. The adverse effects due to the shorter bridge are minimal. Below is a table comparing the two bridge designs.

	290′ bridge	163′ bridge
Average flow rate (based on 1166 cfs)	0.6 fps	0.9 fps
*100-yr flood increase (based on 9620 cfs)	3.4 fps	5.0 fps
Cost on THOUSANDS	$377	$212

*The backwater elevation of the 163′ bridge will be 0.4 feet higher than the 290′ at the 100 year event.

Based on this data, contained in the attached report, and, due to the limited funding for off-system bridges, we urge you to consider the 163′ bridge design. Please contact me at 444-7632 to further discuss this project.

Edrie Vinson
Edrie L. Vinson, Chief
Environmental & Hazardous Waste Bureau

ELV:SRS:ss

cc: David S. Johnson, Preconstruction Bureau Chief
Jim C. Hill, Bridge Bureau Chief
file

Montana Department
of
Fish, Wildlife & Parks

1420 East Sixth Avenue
Helena, MT 59620
January 6, 1993

JAN 8 1993
ENVIRONMENTAL BUREAU

MASTER
FILE
COPY

cc: G.L. Larson
S.T. Weaver
D.S. Johnson

Edrie Vinson, Chief
Environmental & Hazardous Waste Bureau
Dept. of Transportation
2701 Prospect Ave.
Helena, MT 59620

RE: BR 9015 (11)
Swan River Bridge
CN #1132

Dick McIntyre's December 4, 1992, memo to you reported that our agency did not see any insurmountable problems with the Swan River Bridge project when the "fill" concept was discussed with us. We would like to see any copies of the correspondence or reference to anyone in our agency who discussed the fill design with any MDT personnel prior to October 6, 1992. Scott Rumsey or Ken Chrest do not recall, nor do our files reflect any discussion with MDT on this project prior to the receipt of the proposed bridge plans on October 6, 1992.

Our first correspondence to MDT concerning this project was on January 23, 1992. It provided general fishery and wildlife information for your environmental document. Our second correspondence, dated October 22, 1992, expressed a concern about the preliminary bridge design after we reviewed the plan. These procedures follow the intent of the MOU, which states we should conduct instructional correspondence in writing.

This is the second project over the past two years that MDT has requested that we sacrifice the intent of the Stream Protection Act by allowing a further alteration of a stream beyond its natural and existing state. We understand it is MDT's intent to reduce the cost of the project, but in turn it becomes a cost to the state as a whole, due to the loss of habitat. On future projects such as this, it is requested that MDT not look only at the costs to construct a project, but give more consideration to the long term impacts on the environment.

We will approve of the project as proposed, but in lieu of the loss of habitat on this project, the access site immediately above the bridge must be maintained and we request off site mitigation for improvement of the floater take out at Bear Creek, about 4 miles upstream on the Swan River.

If you have any question, feel free to contact me.

Al Wipperman

Al Wipperman
Fisheries Division

C: Larry Peterman
Region 1 - Vashro
Ken Chrest

Montana Department of Transportation

2701 Prospect Avenue
PO Box 201001
Helena MT 59620-1001

Marc Racicot, Governor

MASTER FILE COPY

February 16, 1993

Jack G. Thomas
Environmental Programs Supervisor
Water Quality Bureau
Cogswell Building
1400 Broadway
PO Box 200901
Helena, Montana 59620-0901

Subject: Swan River Bridge - West of Ferndale
BR 9015 (11)
Control No. 1132

In response to your February 9th letter, MDT is currently doing an Environmental Assessment (EA) on this proposed project. Consequently, an individual 404 Permit will be required instead of a Nationwide 404 Permit.

You and the people who were carbon-copied have been added to the distribution list of the EA when it is completed. There will a formal Public Hearing for the public to review and comment on it before it is final. You can expect this EA to come out around June or July.

Edrie Vinson

Edrie L. Vinson, Chief, Environmental & Hazardous
Waste Bureau

cc: Jim Hill
Jim Weaver
Gordon Stockstad
file

DEPARTMENT OF HIGHWAYS

TED SCHWINDEN, GOVERNOR

STATE OF MONTANA

May 25, 1988

Kathy Huppe
State Historic Preservation Office
225 North Roberts
Helena, MT 59620

BR 9015(11)
SWAN RIVER, FLATHEAD COUNTY

The Swan River bridge is located on a county road that connects with FAS 209 about 2 miles east of Big Fork. The bridge was constructed in 1911 by A. H. Bayne and Company, and has been recorded as SHPO #223, priority 3. It was not considered eligible for listing on the National Register

From the bridge, facing upstream or east, one can see the stone filled crib log structures that probably served as foundations for piers for this or an earlier bridge that was situated with a considerable skew. The historic record makes no mention of a previous structure or the moving of this one

In 1964, FAS 209 was reconstructed. It passes the project area along a steep north facing slope. Construction entailed cutting into the slope to form the road bed, and the spoil material wes piled down slope (north) toward the river. Just west of the bridge the slope was so precipitous as to require riprap, which was formed of the large boulders made available from blasting to construct the road. In short, the entire south side of the project area has been altered by road construction and by bridge relocation.

The north side of the Swan is shallow, swampy during low water, and the county road that follows it is cut from the south slope of a hillside. An approach road to the bridge was constructed of fill materials, probably those resulting from road construction along the slope.

I walked the south side project area in intervals ranging from 10 to 25 meters, depending on the accessibility of the terrain. Visibility was poor due to heavy undergrowth, deciduous trees (probably willow and aspen) and cedar. Ground surface was bare along a narrow driveway or dirt road leading upstream to a private cabin, and in the vicinity of a boat unloading road next to the bridge. Near the boat facility was an informal camping area and a fire pit indicated recent and frequent use. Near here, the old bridge approach would have been located, and I speculated that the site had been filled in

many years before. Mitzi Rossillon dug a test pit here east of the bridge, 5 meters south of the water's edge, and 20 meters northeast of the center of the driveway. She found disturbed stratigraphy, 5 cm of humus; 5 cm of ash, 4 cm orangish brown silty sand, a smear of dark brown with high organic material; more orangish silt the next 2-3 cm, but slightly lighter in color; and then grayish sandy silt, probably insitu material. The natural river's edge would have been very steep here, and most likely it was unsuitable for human habitation.

The county road connecting the bridge to FAS 209 is cut in the spoils of the secondary road construction. I walked the cut bank and observed large boulders intermixed with fill. A few broken bottles were in the ditch. No artifacts of earlier vintage were identified. Still on the south side, and to the west of the bridge, the hillside to the water's edge was steep, and large boulders cluttered the surface. Mitzi Rossillon scraped the duff from the surface about 2 meters from the county road. No artifacts were observed in the grayish dirt. Ten meters further west, she cleared away the duff, and again found no artifacts. I am completely convinced that the area was totally disturbed by previous construction work.

I walked to the north bank, crossed the bridge and confirmed that the approach road to the bridge was fill material. I returned along the opposite side of the road and again was sure only fill material was visible in the project area.

I recommend that you give clearance to proceed with this project as in compliance with Section 106 of the Historic Preservation Act. If you have any questions, please call and discuss them with me so that we can expedite the review process. Thank you.

Edie Vinson

EDRIE VINSON, ARCHITECTURAL HISTORIAN
ENVIRONMENTAL UNIT

EV:cm:2/y

Enclosures

cc: S. C. Kologi
M. H. Rognlie
K. F. Skoog
V. D. Borden

**Montana Department
of
Fish, Wildlife & Parks**

Region One - 490 N. Meridian
Kalispell, MT 59901
(406) 752-5501
FAX (406) 257-0349
Ref: SR66.93
February 19, 1993

MASTER FILE
COPY

Jeff Berglund
Department of Transportation
2701 Prospect Avenue
Helena, MT 59620-9726

Dear Jeff:

Enclosed is the information you requested. As a note, remember that the fish ladder at Bigfork Dam was sealed in June of 1990 to prevent upstream migration of lake trout and lake whitefish into Swan Lake. Prior to that time the ladder was open for upstream migration. The dam was built in 1902 and the ladder installed in the 1920s and improved in 1960. Design flaws never allowed efficient upstream passage and a ladder review conducted by Jack Osborne for Pacific Power in 1988 identified problems with the ladder. Our position at the time was to encourage renovation of the ladder by Pacific Power. They evaluated the project and were moving forward until we identified the threat of lake trout and lake whitefish movement into the Swan. Our position now is to block upstream migration of these species that will jeopardize the existing fishery.

I hope this information meets your needs.

Sincerely,

Scott Rumsey

Scott Rumsey
Fisheries Biologist

/ss

Montana Department
of
Fish, Wildlife & Parks

JUL 21 199

ASTER
FILE
COPY

Shannon Schultz
Environmental & /Hazardous Waste Bureau
Montana Department of Transportation
P O Box 201001
Helena MT 59620-1001

July 20, 1993

cc R/O
WEAVER
~~[illegible]~~
HILL
JOHNSON

Subject: Swan River Bridge near Ferndale
BR 9015(11), Control #1132

The purpose of this correspondence is to define the current situation of the Department's mitigation request for the proposed bridge project on the Swan River at Bigfork. I have discussed this topic with the Stream Protection staff in the Helena office and with the regional personnel. The decision on this matter is left to the Regional Supervisor (Dan Vincent). Therefore, the following points are the preliminary recommendation for mitigation.

1) The intent of the Stream Protection Act would be sacrificed because the extensive fill incorporated in the initial design (memo from Al Wipperman, 1/6/93).

2) If the proposed project proceeds, it was suggested that the water access point located immediately above the bridge be maintained.

3) Since the MDFWP was unable to locate potentially positive habitat projects in the immediate vicinity of the bridge construction, it was suggested that a floater take-out improvement be considered in the vicinity of Bear Creek.

4) If the floater take-out is pursued, the scope of the access project is intended to be minimal. The specific site envisioned in this proposal, already exists as a highway turn-out. The improvements should be limited to leveling the existing slope between the river and the highway turn-out and possibly making minor adjustments to the shoreline for easier boat landing. The purpose of these modifications is to allow easier boat carry out. This area is predominantly used as a canoe take-out point for floats originating from Swan Lake or the MDFWP Swan River Fishing Access Site (see the attached map).

It is important to realize that the final bridge plans have not been submitted to MDFWP for approval. Therefore, no permit (with the mutually agreed on mitigation) has been issued.

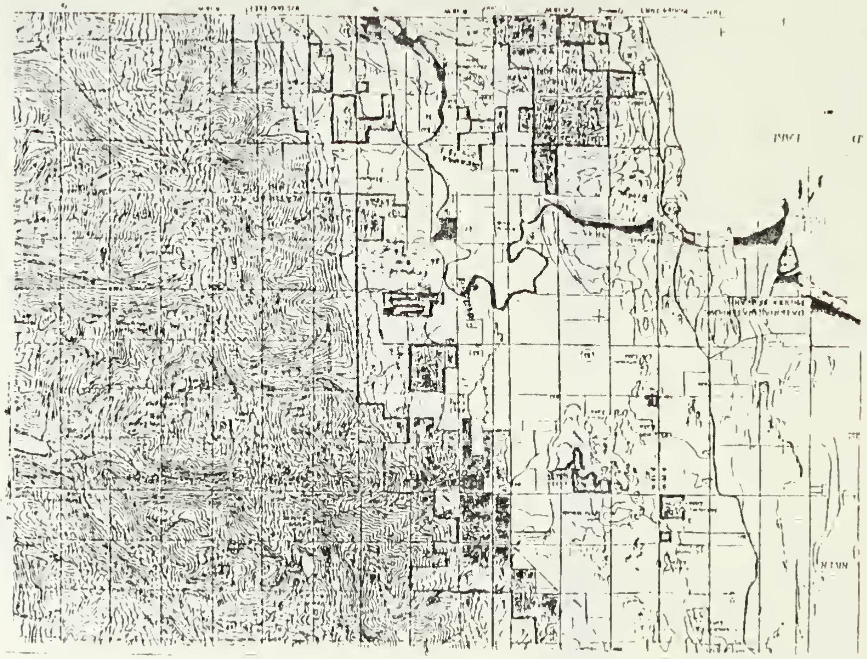
The Department realizes that is not the traditional approach to stream protection. In this case, we appear to have very few options. This work should not be excessively costly and should be an asset to the area.

I hope this clarifies any confusion on this matter.

Sincerely,

Bruce J. Rehwinkel
Fisheries Division

cc: Dan Vincent
Jim Vashro
Scott Rumsey
Ken Chrest
Al Wipperman



Appendix C: Public Meeting Comments

1/27/93

ARC.

Jim Hill
Dick McIntyre
1-15 9

JAN 25 1993
MDT - MISSOULA

RUSSELL COMPANY
AL & KAY

No.81-0408431
(406)837-4279

289 Swan Retreat
BigFork, Mt. 59[illegible]

CU 1132

****

January 21, 1993

Montana Dept. of Transportation
P. O. Box 7039
Missoula, Mt. 59807

Certified # P771 401 913

Att: James T. Weaver, P.E.
District Engineer

Dear Mr. Weaver,

Thank you for conducting the recent public meeting regarding the old bridge on the Swan River east of Bigfork.

Our family began crossing this bridge almost on a daily basis since December of 1967 and, without question, a new facility is needed. We support the use of Federal State funding to build a new structure. The bridge is worn out! By the nature of my work, I use all bridges in Flathead County as well as all bridges in three adjacent counties.

We must not repeat what a special interest group did, with the help of the Lake County Commissioners, on a bridge upstream on the same river in Lake County. This bridge was closed as being unsafe for a long time as Lake County did not have the monies to take care of the needed repairs.

The group finally applied enough pressure so that a band-aid repair approach was used. The bridge went from two lane to one lane with a height restriction and a small load limit & is worthless except to foot traffic and passenger vehicles. It does not meet the needs of the tax payers &, will not, until it has been replaced.

Bigfork is blessed with an outstanding Fire Dept., a QRU, a public school bus system & a county road crew. This excellence did not just happen, it was created by the hard work of many citizens. For them to receive these services, the providers are required to detour for miles & miles because of the old bridge. The bridge is 82 years old!

The line crew trucks of PPL & REC can not use the bridge. TCI can not, UPS probably not. Local contractors can not. Neither can the garbage or septic services or anything greater than 3 ton including a pickup full of firewood. The bridge is not worth repairing &, any repair in short, is a waste of dollars!

If the Bigfork Fire Dept., is assisting the Creston unit & my home catches on fire, the Ferndale unit will assist the Bigfork area & me. For them, its 3 miles via a new bridge vs a 12 mile detour because they can not use the old bridge. If the anti new bridge group drags out this needed construction, & my home burns down as a result of an unnecessary detour, they will be faced with litigation. Plain & simple.

I have faith in the judgement of the our County Commissioners &, like me, they know that a fire truck, a snow plow, a school bus, & a dump truck must have priority over any historical interests. The priorities must be & will be measured by the needs of the majority. The bridge was designed for Model A traffic. These vehicles, like old bridges, are in short supply. Let us pray that we are not required to restore & resort to the Model A & T again for the sake of history.

Jim, as an engineer, you know a new bridge is needed. The bridge & the approaches, in my opinion, must be designed to a handle the waters of a 100 year flood. I request that a study be made to determine the potential run off to support the design. The study should be easy as the USGS has an upstream gauging station & I ask that you provide me with a copy of this report.

The Swan River drains 671 square miles, or just over 18 townships & high water occurred in 1894, 1910, 1926, 1933, 1947, 1964, & 1974. High water occurs on an average of every 11.4 years so we are certainly over due. In 1991 we had the right chemistry but a flood just did not happen. Three over flights have been taken in the last 30 years & these aerial photos clearly identify the flood plain. Since 1980 many new homes have been built in the flood plain upstream &, new bridge or not, these people are going to be in for a major surprise at some time in the future.

I was not here in 1947 but am aware of the high water in 1964 & 1974. In about 1972, the Flathead county road dept., decided to pave from the old bridge to Bermels Store. Prior to then there was no north approach & high water passed under & around which, of course, closed the road.

The road dept., elected to build the north approach without a proper run off design against the will of the citizens. A group of concerned people put the county commissioners on notice of potential property damage & a copy of the document was filed with the clerk & recorder. The poorly designed north approach, in their opinion, created a head gate affect which allowed water to raise & back up on an established pond elevation that already existed by the PPL dam down stream. A second fear is that trees or a building could lodge underneath the old structure in high water adding to further elevation problems.

I live up stream about 2 miles from the old bridge. The 1974 high water was 6" lower at my place than the high water of 1964. However, the records clearly show that the 1964 flood had significantly more volume, both at West Glacier & in the Swan. The group felt that the north approach created a dam & allowed the semi-controlled river level to rise unnecessarily constituting negligence by design. That negligence, if any, would be the responsibility of the road dept., if property damage occurred. So far so good, no flood & no damage.

Neither you, nor I, have no way of knowing if its going to rain 40 days & 40 nites again but we both know that it will rain & snow in the Swan Valley every year. With the right combination, the river will flood again & again. Most of the townships are at higher elevation containing the snow pack along the Mission & Swan Mountain ranges.

The new construction must be designed to handle a 100 year flood. Nothing more, nothing less. If the proper study & design is not made & upstream property damage results because of this, the Federal, State & County agencies will be faced with litigation.

Please call or write if we can be of further assistance.

Sincerely,

AL Russell

Al Russell

c.c. Flathead County Commissioners
c.c. Flathead County Attorney
c.c. Flathead County Bridge Dept.
c.c. Flathead Clerk & Recorder
c.c. Flathead Conservation District
c.c. State Water Operations Bureau
c.c. Fish, Wildlife & Parks
c.c. Brandewie
c.c. Bigfork Eagle

Appendix D: Studies and Reports

Biological Report and Wetlands Finding

MONTANA DEPARTMENT OF TRANSPORTATION
Biological Resources Report

Swan River Bridge - West of Ferndale
Federal Aid Project BR 9015(11)
Control Number 1132

October 25, 1993

EXECUTIVE SUMMARY

The primary intent of the proposed project is to improve the existing bridge over the Swan River located approximately 1.8 miles northwest of Ferndale. The "build" alternatives include rehabilitation of the existing structure or construction of a new bridge. Sensitive biological resources present in the project vicinity include water marigold (a plant species of special concern) and an osprey nest. Neither of these resources should be significantly affected by any of the "build" alternatives. No significant impacts to general wildlife, vegetation, or fisheries communities (including westslope cutthroat and bull trout) would result from the project. It is the determination of this report that the project, under any of the 4 alternatives, is not likely to adversely affect the bald eagle, and will not affect the peregrine falcon, grizzly bear, gray wolf, or water howellia. Approximately 0.14 acres of wetlands would be filled under either of the new bridge alternatives. No onsite wetland or fisheries habitat mitigation opportunities have been identified. Implementation of Alternative A, the "no build" alternative, would cause the least impacts to biological resources over the short term, followed by (in order of increasing impact) Alternative B (bridge rehabilitation), Alternative D (new 290-foot bridge), and Alternative C (new 163-foot bridge).

The following mitigation/coordination measures are required:

- The contractor shall contact an MDT biologist to assess the overall status of nesting bald eagles in the project area prior to the onset of construction.
- The location of construction-related activities, such as staging, batch plant, and borrow/gravel source activities, must receive prior review from an MDT biologist.

Additional measures to reduce impacts to biological resources are included in the body of this report.

PROJECT and GENERAL AREA DESCRIPTION

The proposed Swan River bridge project is located in Flathead County, approximately one mile northwest of Ferndale and three miles east of Bigfork. The surrounding area is a mix of coniferous forest and pastureland, ranges from flat to rugged terrain, and is used primarily for forestry, agriculture, and recreation. Residences and recreation and logging roads are scattered throughout the project area.

The existing 82-year-old bridge consists of a 16.5 foot-wide timber deck, two concrete piers, timber approach spans/abutments, and a steel-framed truss.

Alternatives under consideration include:

A - Leaving the existing structure as is ("no build" alternative);
B - Rehabilitating the existing structure;
C - Replacing the existing structure with a new 163-foot bridge; and
D - Replacing the existing structure with a new 290-foot bridge.

These alternatives are briefly described below.

Alternative A.
Under this alternative, the existing structure would be left as is; no improvements would be implemented.

Alternative B.
This alternative would consist of rehabilitating the existing bridge by salvaging its usable parts and installing new members and pieces where required. Bridge length, alignment, and truss configuration would remain as they are. Timber structures on the approach spans, stringers, and deck would be replaced. A subsurface investigation of the pier footings and foundations would need to be performed if this alternate were selected; rehabilitation, modification, or replacement or these structures may be required. Lead-based paint on the bridge would be removed.

Alternative C.
Under Alternative C, a new 163-foot concrete 2-pier bridge would be constructed. The alignment would be shifted about 10 feet downstream of the existing bridge. The shortened bridge span would require the placement of approximately 4000 cubic yards (cy) of fill material into the river as new approach embankment. Bridge approaches would be realigned to reduce the severity of existing curves.

Alternative D.
Alternative D would consist of replacing the bridge with a new 290-foot concrete bridge. This proposal would be similar to Alternative C, although no additional fill (beyond existing conditions) would be required at the abutments. The longer span would require thicker beams, two to three piers, and further realignment of bridge approaches.

STUDY METHODS

Agency Consultation and Literature Review

Requests for information pertaining to endangered, threatened, and sensitive plant and animal species were sent to the Montana Department of Fish, Wildlife & Parks (MDFWP) and the Montana Natural Heritage Program (MNHP). Additionally, MDFWP and U.S. Fish and Wildlife Service (USFWS) biologists and university staff familiar with the project area were interviewed (Flath, Rumsey, Shelly, Schuyler pers. comms.). A review of pertinent literature was conducted, and the Montana Rivers Information System (MDFWP 1988) was [illegible] regarding the subject reach of the Swan River.

Field Survey

Reconnaissance-level field surveys were conducted in December 1992 and January, March, and April 1993. The immediate project area was examined on foot while surveying for wildlife and sign, such as tracks, scat, and nest structures. Driving surveys were conducted along roads which parallel Swan River to the north and south in the project vicinity. Observation points were established on the bluff south of the river and manned for one day in March and one in April to monitor bald eagle activity in the immediate project area.

The original wetland survey was conducted in April, 1992. Supplemental delineations were conducted in fall, 1993. The wetland delineations were conducted in accordance with The 1987 Corps of Engineers (COE) Wetlands Delineation Manual and the Interagency Memorandum of Understanding: Management and Mitigation of Highway Construction Impacts to Wetlands in the State of Montana. The indicator status of vegetation was derived from the National List of Plant Species that Occur in Wetlands: Northwest (Region 9) (Reed 1988).

STUDY RESULTS

Terrestrial Resources

General Description. According to a vegetation classification system developed by Payne (1973), the general project area is dominated by western larch/Douglas-fir forest. Adjacent to the bridge, the forested/riparian community is dominated by western red cedar, grand fir, lodgepole pine, and paper birch. Understory species include western serviceberry, snowberry, and kinnikinnick. Wetland vegetation is described in the Wetlands section of this report.

Wildlife species inhabiting the general project area are typical of those which occur in forested areas of the northern Rocky Mountains. According to Thompson (1982), 62 mammalian, 6 amphibian, and 5 reptilian species have been observed or are likely to occur in the latilong (an approximate 3000 square-mile block of land measuring one degree latitude by one degree longitude) containing the proposed project. Bergeron and others (1992) have compiled sightings of 230 bird species (142 breeding species) in the quarter latilong in which the project occurs.

Species occurring in the immediate project area primarily consist of those which are associated with riparian or riverine habitats. Red squirrels were commonly observed in the project area. No large mammals were observed during the survey; however, according to the Montana Rivers Information System, the Swan River corridor between Swan Lake and Flathead Lake provides important year round range for whitetail deer, and is moderately used during spring by mule deer. Deer scat was observed along the river on both ends of the bridge. Black bear and mountain lion also occur year round in the river corridor. Other likely mammals in the project area include beaver, muskrat, raccoon, mink, striped skunk, and river otter. According to MDFWP (1992a), river otters occupy the Swan River above the dam. Although muskrats were seen on several occasions, no otter dens or beaver or muskrat lodges were observed near the bridge during the survey.

Birds likely to occur in the area include belted kingfisher, double-crested cormorant, great blue heron, bald eagle, osprey, and a variety of swallows, swifts, and waterfowl. Species observed in early April included hooded merganser, common merganser, mallard, Canada geese, American robin, varied thrush, black-capped chickadee, Barrow's goldeneye, dark-eyed junco, pileated woodpecker, and red-tailed hawk.

Two occupied osprey nests occur in the immediate project area; several others occur downstream of the project. The closest nest is situated on a power transmission pole approximately 300 feet north of the bridge. The second nest is approximately 400 to 500 feet south of the bridge on the forested bluff south of the highway. A third osprey nest structure, located about 1000 feet downstream of the bridge on the south shore, was occupied by a Canada goose during the March and April surveys.

Herptiles in the project area likely include long-toed salamander, Pacific treefrog, spotted frog, painted turtle, and common garter snake. No herptiles were observed during surveys.

Rare & Sensitive Species. A search of the MNHP database revealed occurrences of two plant species of special concern in the project area: water marigold (Bidens beckii) and western witchgrass (Panicum occidentale) (MNHP 1992). Each of these are on the MNHP "watch" list, which includes species considered too common to be listed as "sensitive", but for which information is lacking. However, each species has been assigned a state rank of S2, which indicates that they are considered imperiled in Montana due to rarity of populations (6 to 20 statewide occurrences).

Water marigold was discovered downstream of the north bridge approach in 1982 (Schuyler pers. comm.). The population, one of only six known in Montana, consisted of approximately 50 to 100 plants in water between 1 and 2 meters deep, and is the only known population on the Swan River.

In July 1993, another survey was conducted for water marigold in the bridge vicinity by a graduate student of Dr. Schuyler's. One patch of the plant was located about 120 to 150 feet downstream of the north end of the bridge structure. The majority of the population (estimated at about 80 percent) was located upstream of the existing bridge, at distances ranging from approximately 120 feet to nearly 3000 feet.

The western witchgrass population, surveyed in 1985, is located several hundred feet upstream of the north bridge approach in a small moist meadow. This is one of eight known locations for this species in Montana, but should not be affected by bridge replacement activities downstream of the existing bridge.

Several wildlife species of concern are known or suspected to occur in the general project vicinity (i.e., latilong); however, many of these occur as seasonal migrants or transients and/or are associated with habitats that would not be affected by the proposed project. Examples of such species include grizzly bear, gray wolf,

wolverine, fisher, lynx, northern bog lemming, peregrine falcon, ferruginous hawk, northern goshawk, and great gray owl. No species of concern were observed in the project area during surveys.

Lake-associated species of concern, such as common loon and American white pelican, may occur as seasonal migrants on the Swan River. Although associated with riverine habitat, harlequin ducks are not anticipated to nest in the project area, as they primarily breed along remote mountain streams away from concentrated human activities. Similarly, the tailed frog and Coeur D'Alene salamander, which are primarily associated with fast rushing mountain streams and spray zones, are not expected near the bridge.

Species of concern known from the region (e.g., latilong) that are primarily associated with habitat types which occur in the immediate project area include bald eagle, wood frog, and spotted frog.

The spotted frog, fairly common in western Montana, likely occurs along the marshy edges the wetland at the north end of the bridge. The MNHP has assigned the spotted frog a state rank of S4, which means the species is apparently secure in Montana, although it may be quite rare in parts of its range, especially at the periphery.

In the Northwest, the wood frog occupies open grassy areas bordered by thickets of willow and aspen, with spruce and other forest trees located nearby (Stebbins 1966). Little is known of the wood frog in Montana. Although assigned a range-wide status of G5, which means the species is demonstrably secure at the range-wide level, its Montana status is SU, indicating the frog may be in peril, but its status is uncertain due to lack of information. As the spotted frog, this species may occur in the wetland areas at the north end of the bridge.

Several bald eagle nest territories occur in the general Flathead Lake vicinity; however, no bald eagle nesting occurs within several miles of the project. This species is further discussed under Threatened and Endangered Species.

Impacts. Approach road widening and realignment under Alternatives C or D would result in the maximum loss of approximately 0.25 acres of coniferous riparian forest adjacent to the south end of the bridge. An additional 5-foot wide strip of riparian shrub vegetation would be lost along the west side of the north approach road. A total of about 0.14 acres of wetlands would be filled along the east and west sides of the north approach road. No existing vegetation would be affected under Alternatives A or B.

Due to the small amount of habitat that would be affected, and the existing proximity of that habitat to sources of human disturbance, impacts to general vegetation and wildlife habitat in the project area resulting from Alternatives C or D are judged to be less than significant. Similarly, disturbance to wildlife communities in the project area that construction activities under any of the build alternatives would cause is also considered to be less than significant, as the disturbance would be temporary and alternative similar habitat in the general area is abundant.

Tolerance of nesting ospreys to human activities depends on the timing and frequency of the activities and on the degree of habituation that individual pairs develop to them; ospreys nesting in an area frequented by humans may be more tolerant of human activities than those unaccustomed to humans (Rodrick and Milner 1991). Ospreys nesting on the power pole 300 feet north of the bridge are currently exposed to considerable road and pedestrian traffic associated with fishing, floating, hiking, and "normal" daily travel patterns. These birds should not be significantly disturbed by construction activities on the existing bridge or on either of the new bridges under consideration.

Grading, fill placement, and other heavy construction work on the north end of the north approach road, which ranges between 50 and 300 feet from the nest, is more likely to periodically disturb and flush birds from the nest than activities on the bridge itself. Causing adults to leave the nest frequently or for extended periods could be fatal to embryos and nestlings, particularly if this occurred before nestings were capable of independent thermoregulation. Construction-related risks to osprey nestlings could be substantially reduced or eliminated by enacting measures described below under Mitigation.

The osprey nests located 400-500 feet south and over 1000 feet west of the bridge are sufficiently screened and far enough from proposed construction activities to be significantly disturbed by them. No tree clearing would occur near either of these structures.

At estimated distances of 120 to 150 feet downstream and 120 to 3000 feet upstream of the existing bridge, no direct impacts to water marigold are anticipated from construction under any of the alternatives. The downstream plants may be exposed to temporary short-term increases in turbidity during construction; however, water marigold is capable of withstanding moderate increases in turbidity, particularly if these increases are not prolonged (Schuyler pers. comm.). Habitat in the area would likely clean itself out following construction (Schuyler pers. comm.). For these reasons, no significant impacts to water marigold are anticipated under any of the alternatives. The population of western witchgrass is located several hundred feet upstream of the bridge and would not be affected by construction activities.

Habitat for the spotted frog and wood frog, potential inhabitants of wetland areas north of the bridge, would be reduced by less than 0.2 acres under either of the new bridge alternatives. This impact is not considered significant due to the relative abundance of similar habitat in the project area and the relative security of the species. Wetland mitigation for this project, when identified and constructed, may replace lost habitat for these species in the project area.

No bald eagle nests occur in the area; no impacts to eagle nesting are anticipated from any of the alternatives. Eagles are further discussed under Threatened and Endangered Species.

As discussed above, other species of special concern, such as common loon, harlequin duck, wolverine, lynx, fisher, grizzly bear, and gray wolf may occur incidentally in the general project area, but are not expected to reside in the construction corridor. No significant impacts to these migrating and/or transitory

above-mentioned species (MDFWP 1988, 1989, 1990, 1991). Rainbow trout and mountain whitefish were by far the most abundantly collected species in the canal. Due to water depth, the reach of the Swan River through the project area cannot be electroshocked effectively. Consequently, no collection data specific to this reach is available.

No northern pike spawning has been documented in the immediate project vicinity; however, pike have been observed during the spawning period, and spawning, as well as rearing and maturing, is likely in the area (Rumsey pers. comm.). Little is known of the largemouth bass population in the area. A few are caught near the bridge by fisherman each year, but little data exists for this species.

No trout or mountain whitefish spawning occurs in the bridge vicinity, although rainbow trout redds have been documented between the bridge and Swan Lake (Rumsey pers. comm.). Habitat in the project area is primarily used by trout for migration and possible rearing (Rumsey pers. comm.). Trout rearing may be limited in the area due to the presence of northern pike and northern squawfish, both of which prey heavily on juvenile salmonids (Brown 1971).

The fish ladder at Bigfork Dam was sealed in 1990 to prevent upstream migration of lake trout and lake whitefish to Swan Lake, preventing fish recruitment to the project area from below. There is some recruitment to the project reach from above the bridge; primarily from rainbow trout, westslope cutthroat trout, and mountain whitefish (Rumsey pers. comm.).

Rare & Sensitive Species. Two species of concern, westslope cutthroat trout and bull trout, occur in the project vicinity. A petition to list bull trout as threatened or endangered was approved for further evaluation by the USFWS on May 17, 1993. As discussed above, habitat in the bridge area is primarily used for migration and possible rearing by trout; however, no spawning has been documented.

Both of these species were captured downstream of the bridge during the fall Bigfork Canal fish collection efforts conducted between 1988 and 1991 (MDFWP 1988, 1989, 1990, 1991). A few westslope cutthroat were captured during each of the four years (36/218 fish in 1988, 24/505 in 1989, 9/336 in 1990, and 10/193 in 1991. Only one bull trout was collected during the four year period (1989;1/505).

Impacts. Alternative A, the "no build" alternative, will result in no impacts to the river in the project area over existing conditions. Over the long term, however, leaving the bridge as is without replacement or rehabilitation would foster the continued deterioration of the bridge, which could conceivably result in an eventual collapse. Collapse of the bridge would likely result in significant impacts to water quality. The occurrence of such an event is speculation, however, and is not discussed further.

Alternative C, replacement of the existing 276-foot bridge with a 163-foot bridge, would cause the most impacts to the river among the 4 alternatives, primarily due to the amount of fill required at the abutments (about 4000 cy) to shorten the bridge span. Consequently, Alternative C will be the focus of this discussion, and

above-mentioned species (MDFWP 1988, 1989, 1990, 1991). Rainbow trout and mountain whitefish were by far the most abundantly collected species in the canal. Due to water depth, the reach of the Swan River through the project area cannot be electroshocked effectively. Consequently, no collection data specific to this reach is available.

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Impacts. Alternative A, the "no build" alternative, will result in no impacts to the river in the project area over existing conditions. Over the long term, however, leaving the bridge as is without replacement or rehabilitation would foster the continued deterioration of the bridge, which could conceivably result in an eventual collapse. Collapse of the bridge would likely result in significant impacts to water quality. The occurrence of such an event is speculation, however, and is not discussed further.

Alternative C, replacement of the existing 276-foot bridge with a 163-foot bridge, would cause the most impacts to the river among the 4 alternatives, primarily due to the amount of fill required at the abutments (about 4000 cy) to shorten the bridge span. Consequently, Alternative C will be the focus of this discussion, and

the others will be compared to it.

The primary long term impacts of bridge replacement would consist of alteration of local hydrology and fish habitat loss. Short term impacts, such as increased turbidity, would result from actual construction activities.

The hydraulics at the bridge are primarily controlled by the Bigfork Dam, located about 1 mile downstream. Considering elevational differences between the top of the dam and the water surface at the bridge, it is determined that the dam creates a minimum water depth of about 10 feet at the bridge. With the shortened bridge span, backwater elevation at the bridge would increase by 0.4 feet during the 100 year flood event; increase in backwater elevation would be much less at the average annual flow. From a fisheries standpoint, the increases in backwater would be insignificant; neither would have any significant detrimental or beneficial effects on fisheries habitat in the project area.

Based on 66 years of United States Geologic Survey records, the average flow at the bridge is 1166 cubic feet per second (cfs), and the average velocity is 0.6 feet per second (fps). The velocity of the river at the bridge during the 100 year flood (9620 cfs) is 3.4 fps.

Shortening the bridge span to 163 feet would increase the average velocity at the bridge from 0.6 fps to 0.9 fps. From a hydrological standpoint, this increase would be negligible, and would not present any velocity barriers to fish passage. At the 100 year flood event, the shortened span would increase the velocity at the bridge from 3.4 fps to 5 fps. Again, the increase would be nominal for such a flood event, and would not significantly affect fish movement beneath the bridge.

Placement of an estimated 4000 cy of fill material at the bridge abutments to shorten the span would result in corresponding fish habitat loss at the site. Habitat at the bridge and in the vicinity is suspected to be used for spawning, rearing, and maturing by northern pike, and for rearing and migration by trout and mountain whitefish. It is estimated that between 0.2 and 0.3 acres of habitat would be lost under the new bridge abutments. Additional small amounts of habitat would be lost to the construction of two bridge piers.

Habitat similar to that which would be lost to construction is abundant in the immediate area; consequently, it is inappropriate to consider the affected habitat as especially unique, limiting, or critical to local fish populations. Fish passage beneath the bridge, however, is very important to the local population. Because the amount of habitat that would be lost is small and localized; similar habitat is abundant in the immediate project vicinity; and no significant hydrological impacts or effects on fish movement at the bridge are anticipated, it is determined that construction of the 163-foot bridge would not significantly affect fish habitat or activities in the project vicinity, including those of westslope cutthroat and bull trout.

Actual placement of the fill and piers would result in short-term increases in turbidity at and downstream of the project site. Deposition of excessive fine sediment on stream bottoms can reduce macroinvertebrate abundance and diversity, reduce permeability of spawning gravels, and block interchange of

subsurface and surface waters (Nelson et al. 1991). Turbidity increases would be temporary and relatively short term. and best management practices for sediment/erosion control during construction would be employed in compliance with applicable water quality permits. Consequently, no significant long-term turbidity-related impacts are anticipated.

Northern pike typically spawn in shallow flooded marshes or backwaters (Brown 1971), an abundant habitat type in the project area. Fertilized eggs are adhesive and stick to vegetation and other substrates; no nest is constructed. No protection is afforded the young by the parents, which return to deeper water soon after spawning. Impacts to spawning adults during construction would be minimal.

Significant impacts to spawning northern pike are not anticipated due to the small amount of habitat that would be affected, the local abundance of similar habitat, and the spawning habits of the species. Impacts would be further minimized if instream work occurred during the late summer months. For northern pike in the project area, prespawning movement and spawning occurs from March to June; hatching and out-migration occurs in June and July (Rumsey pers. comm.).

Impacts of Alternative B, rehabilitating the existing bridge, and Alternative D, constructing a new 290-foot bridge, on fisheries resources would be less than those that would occur under Alternative C. As no additional encroachment into the river at the bridge abutments would be required under Alternatives B or D, it follows that approximately 0.2 to 0.3 acres less fish habitat would be lost under these alternatives than would be lost under Alternative C. Very small amounts of habitat would be lost to the 290 foot bridge where 2 to 3 piers would be required; it is currently unknown whether rehabilitation of the existing bridge would require rehabilitation or replacement of pier footings. Amounts of habitat that would be lost to pier construction are unknown at this time; however, it is presumed that habitat lost to piers would amount to less than 0.1 acres.

Based on the above analysis of Alternative C, it is determined that implementation of Alternatives B and D would not significantly affect fisheries or hydrological resources in the project area.

Mitigation/Coordination Measures. Conditions specified in the Stream Protection Act permit and other permits required for this project will assist in minimizing project-related impacts from all alternatives. Best Management Practices for sediment/erosion control would be employed during construction to minimize sediment increases in the Swan River during construction.

Opportunities to mitigate in the project area for the estimated 0.2- to 0.3-acre loss of fish habitat under Alternative C are very limited; little can be done to improve fish habitat in the area (Rumsey pers. comm.). MDFWP has suggested mitigation in the form of improving a floater take-out area at Bear Creek, approximately 4 miles upstream of the bridge on the Swan River (MDFWP 1993).

Threatened and Endangered Species

The threatened and endangered species include those species listed or proposed for listing by the USFWS as threatened or endangered. Under Section 7 of the

Endangered Species Act, as amended, activities conducted, sponsored, or funded by federal agencies must be reviewed for their effects on species federally listed or proposed for listing as threatened or endangered.

No plant species in Montana are federally listed as threatened or endangered. One aquatic plant species, water howellia (Howellia aquatilis), is proposed for listing; however, the proposed project does not fall within the expected range of this species.

Threatened or endangered wildlife species which may occur in the project area are: the bald eagle (endangered), peregrine falcon (endangered), gray wolf (endangered), and grizzly bear (threatened). The project area is not included in any grizzly or wolf recovery zones, and has not been classified into any of the three "grizzly bear management situations". Additionally, due to the relatively high levels of human activity and poor quality of grizzly and wolf habitat in the project area, these species are not expected in the immediate project vicinity, and are not considered for further analysis in this report.

As previously mentioned, a petition to list bull trout as threatened or endangered was approved for further evaluation by the USFWS on May 17, 1993. Given the nature (e.g., no spawning; possible rearing) and low level of bull trout use in the project area, and the scope of the alternatives under consideration, no adverse impacts to this species are anticipated (see previous discussion under Aquatic Resources).

Bald Eagle

Analysis. Four occupied bald eagle nest sites occur within 6 miles of the subject bridge (MDFWP 1992b, Flath pers. comm.). Nests occur at the north shore of Flathead Lake, Fennon Slough (Flathead River), Echo Lake, and near Loon Lake. The closest of these, the nest near Loon Lake, is over 2.5 miles from the proposed project. It is likely that eagles from most of these nests forage at times in the project area; adult eagles have frequently been observed perching near the Bigfork Dam on the hillside north of the river (Flath pers. comm.).

MDFWP surveyed the immediate project area for bald eagle nests by plane in April 1993. No new nests were located. Eagles periodically observed near the dam are most likely foraging adults from one of the nests listed above (Flath pers. comm.). No eagles were observed in the project area during March and April reconnaissance surveys.

None of the eagle nests in the project area are close enough to be affected by construction-related disturbance. Although minor clearing (approximately 0.25 acres) of immature coniferous forest would occur adjacent to the south end of the bridge under Alternatives C or D, no potential nest habitat would be affected by the project. Consequently, no impacts to nesting eagles are anticipated from the proposed project.

Eagle use in the project vicinity occurs primarily along the Swan River where potential perch trees are abundant. In addition to pairs nesting in the area, bald eagles may occur as spring and fall migrants, non-breeding summer residents, and occasional winter residents (Flath pers. comm.).

The above-mentioned clearing of 0.25 acres of immature coniferous forest would not represent a significant loss of potential perch habitat, as the affected habitat is of marginal quality and higher quality perch habitat is abundant in the immediate area. As discussed under Aquatic Resources, no significant impacts to fisheries are anticipated from any of the "build" alternatives.

Construction activities may temporarily disturb or displace eagles foraging in the immediate bridge vicinity. However, because: (1) no primary foraging habitat would be affected; (2) the areas and duration of disturbance would be relatively confined, and (3) undisturbed habitat for displaced birds is abundant in the surrounding area, these impacts are considered to be less than significant.

Mitigation/Coordination Measures. The following measures are required to ensure that impacts to bald eagles are minimized:

- o Required: The contractor shall contact an MDT biologist to assess the overall status of nesting bald eagles in the project area prior to the onset of construction.
- o Required: The location of construction-related activities, such as staging, batch plant, and borrow/gravel source activities, must receive prior review from an MDT biologist.

Determination of Effects. Based on the above information and mitigation/coordination measures, it is determined that implementation of the proposed action is not likely to adversely affect the bald eagle.

Peregrine Falcon

Analysis. Peregrine falcons may occur in the project area as spring and fall migrants (Flath pers. comm.). The proposed alignment would not cross any primary potential nesting habitat such as rock outcrops or cliff ledges, and no such habitat occurs within several miles of the project. For these reasons, the proposed project is not expected to affect nesting peregrines.

Potential habitat for migrating falcons in the immediate project area primarily occurs along the Swan River and associated sloughs and wetlands. Construction during spring and fall may temporarily disturb migrating peregrines foraging over the river; however, it is anticipated that few, if any, peregrines would be displaced during construction. Additionally, similar habitat is abundant in the immediate vicinity and would provide ample habitat for displaced birds. Therefore, impacts to migrating peregrines resulting from construction of the project are considered to be less than significant.

Mitigation and Coordination Measures. As peregrines are only expected to sporadically occur in the project area, and no significant impacts to peregrines are anticipated from the project, no mitigation/coordination measures are required for this species.

Determination of Effects. Based on the above information, it is determined that implementation of the proposed action will not affect the

peregrine falcon.

Conclusions: Threatened and Endangered Species. It is the determination of this report that the proposed action is not likely to adversely affect the bald eagle, and will not affect the peregrine falcon, grizzly bear, gray wolf, or water howellia. The specified mitigation/coordination measures have influenced the conclusions drawn from this assessment, and are subject to subsequent review by the Endangered Species Office of the USFWS to determine compliance with the Endangered Species Act. Consequently, any substantive deviation from the proposed measures contained in this assessment will require approval from that office.

Wetlands

A wetlands survey was conducted and a Wetlands Finding prepared for the proposed project in May of 1992 (MDT 1992). A supplemental delineation was conducted in fall of 1993. Two wetlands occur in the immediate project area, and are described below. Wetland locations are shown on the attached map.

A MDT/MDFWP wetland site evaluation form for Site 2 is included in this report; the evaluation form for Site 1 was presented in the original Wetlands Finding prepared for the subject project and is not included here. However, summaries of wetland functions and values for each of the two sites, as determined using the MDT/MDFWP wetland site evaluation forms, are presented in Table 1. On a scale from 1 to 24, Sites 1 and 2 each rated a "16", or moderate to high value, in terms of functions and values (Table 1) when rated on the wetland site evaluation form.

Site 1 occurs north of the bridge along the east side of the approach road. The wetland is an approximate 0.7-acre emergent/scrub-shrub marsh adjacent to the river which is dominated by cattail, willow, and red-osier dogwood, and is bordered by patches of Douglas-fir/western larch/aspen forest. Habitat interspersion at Site 1 is excellent, providing habitat for a variety of wildlife species.

Site 2, an approximate 2.3-acre emergent shallow marsh, occurs north of the bridge on the west side of the approach road. The wetland is dominated by bulrush and sedge, and was flooded to depths of six inches to 1 foot during the fall survey. The site provides some fish habitat, and is likely used as a foraging area for wildlife such as osprey and great blue heron.

Approximately 0.07 acres of each wetland (a total of 0.14 acres) would be filled as part of the approach road widening proposed under Alternatives C and D. Wetland acres in the immediate project vicinity would be reduced from approximately 3 to 2.86 acres; a reduction of about 5 percent. This would not represent a significant loss to either wetland in terms of function or value.

Originally, it was estimated that 0.26 wetland acres would be impacted; however, through design modifications, including steepening slopes and installing guardrail on the approach road, projected wetland impacts have been minimized to the extent practicable under Alternatives C and D. No wetland loss would be anticipated under Alternatives A or B.

As no onsite mitigation opportunities have been identified, the 0.14-acre balance will be added to the MDT Wetland Ledger and compensated for when suitable mitigation site(s) are identified and approved by the Montana Interagency Wetland Group.

MDT will continue to pursue additional potential mitigation sites in the project vicinity in compliance with the Interagency Memorandum of Understanding: Management and Mitigation of Highway Construction Impacts to Wetlands in the State of Montana.

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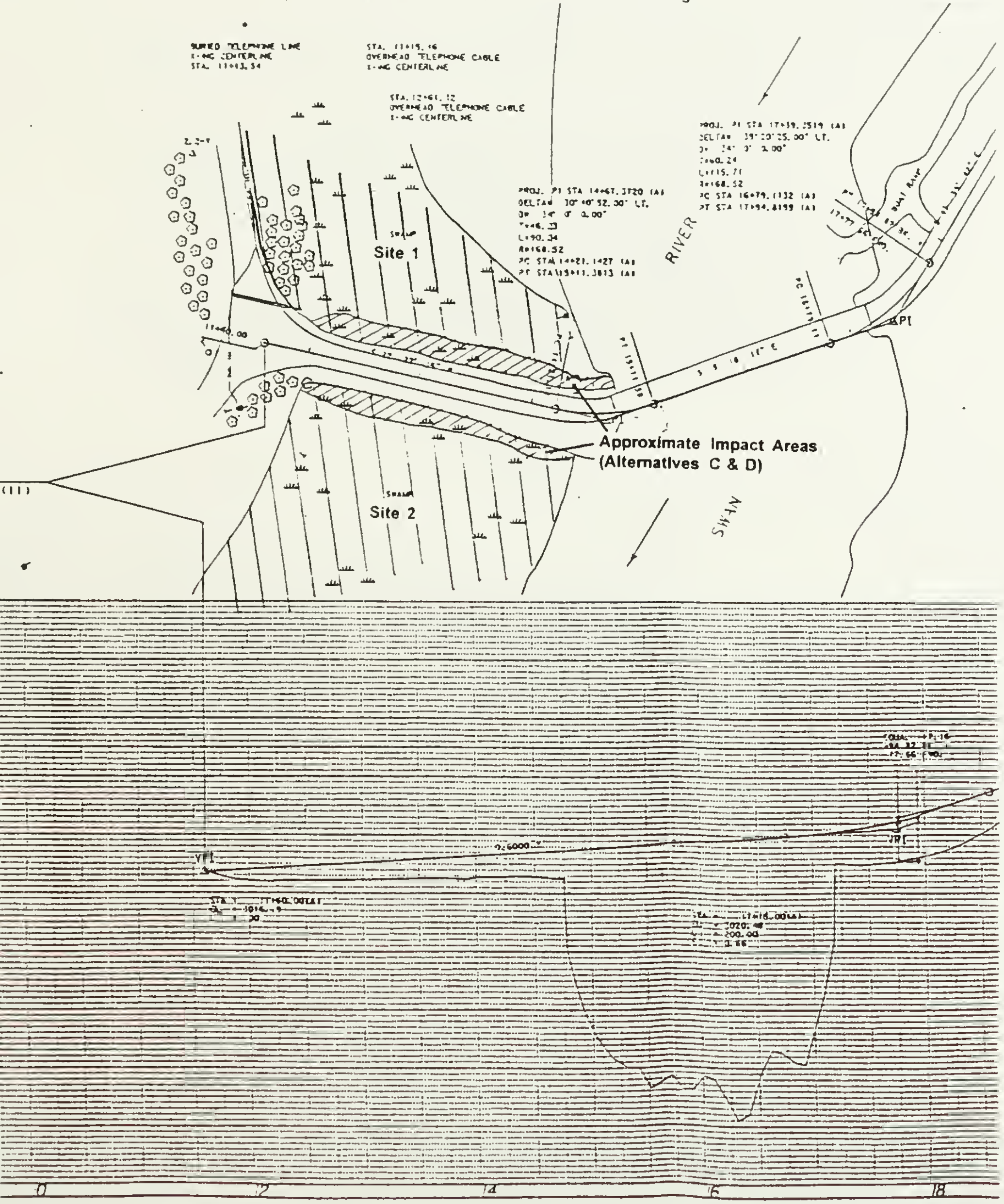
Table 1 - Swan River Bridge
Summary of Wetland Functional Values and Overall Rankings from MDT/MDFWP Wetland Site Evaluation Forms*

Evaluation Criteria and Maximum Value	Site 1	Site 2
Sediment Control Rating (3)	2	3
Nutrient Retention Rating (3)	3	2
Relative Flood Storage Rating (3)	3	3
Relative Food Chain Support (3)	3	3
Wildlife Habitat Values		
Highest (3)	2	2
Lowest (3)	2	0
Fisheries Habitat Values		
Highest (3)	1	2
Lowest (3)	0	1
Totals (24)	**16/24**	**16/24**

* See MDT/MDFWP Wetland Site Evaluation Forms for explanation of criteria and values

Approximate Wetland Locations - Swan River Bridge



MDT/MDFWP
WETLAND SITE EVALUATION

Project Name Swan River Bridge -West of Ferndale Project No. BR 9015(11)
County Flathead Drainage Swan River
Township 27N, Range 19W, Section 32

Site Location Hwy off 209 Station n/a Milepost n/a

Date of Evaluation 10/20/93 Evaluator Berglund

Comments Site occurs immediately west of the north approach road at the Swan River bridge; is referred to as "Site #2".

1. Classification (from Novitski, 1979)

Hydrologic/Vegetative Type(s) (see reverse side)

1. Type I-D Area 100% Size 2.3 acres
   Dominant species (a) Scirpus Sp.
   (b) Carex Sp.
   (c) Potentilla anserina

2. Type Area Size
   Dominant Species (a)
   (b)
   (c)

3. Type Area Size
   Dominant Species (a)
   (b)
   (c)

2. Adjacent Supporting Habitats (Descriptive Summary to include type, vegetation, area, location, condition, wildlife/fisheries values.)
Adjacent to dammed reach of Swan River, which provides habitat for several wildlife and warm water fish species. Is also wetland (scrub/shrub-emergent) on east side of north approach road which is high quality wildlife habitat particularly for deer, osprey, and several songbird species.

Adjacent UPLAND Habitats (vegetation, area, location, condition, land use, erosion potential, wildlife values)
Site bordered by riparian strip of Douglas fir/alder/red osier dogwood forest. Surrounding upland habitat is chiefly comprised of Douglas fir/western larch forest.

Wetland Hydrologic Category and Vegetative Type (Novitski, 1979)

I. Hydrologic Cat.: Sites with Permanent Shallow Water (6.6 ft.)

Vegetative type

- A. Floating
- B. Rooted Submerged
- C. Rooted Floating-leaved
- D. Rooted Emergent

II. Hydrologic Cats.: Sites with Seasonal or Permanent High Water Tables, but WITHOUT Permanent Standing Water.

Vegetative type

- A. Herbaceous
- B. Shrub
- C. Forested
- D. Unvegetated

III. Hydrologic Cat.: Riparian Sites Adjacent to Streams or Rivers with Seasonally Saturated Soil Conditions.

Vegetative type

- A. Herbaceous
- B. Shrub
- C. Forested
- D. Unvegetated

Sites may have more than one hydrologic category and vegetative type present. The estimated relative percent of each vegetative type should be recorded under 'Area'. 'Size' entry is for estimated area in hectares/acres. A site with more than one hydrologic and vegetative type could be characterized as a I A/C, 2080; II B/C, 40/60, indicating that a permanently flooded, shallow water wetland is present, consisting of floating and rooted emergent vegetative types in a 20:80 ratio AND a community with seasonal or permanent high water table consisting of shrub and forested vegetative types in a 40:60 ratio. Total size can be estimated to the nearest hectare/acre based on field observations, measured on suitable aerial photography, or calculated from road plans, as appropriate.

Conversions
# of square feet X .000022957-ACRES, I Hectare-2.47 Acres

Acres X .40485 = HECTARES

3. Relative Commonness of Wetland Type in Area 2
   (1) abundant (2) common (3) rare

4. Recreational Use Potential 1
   (1) low (2) moderate (3) high

5. Degree of Habitat Interspersion 1
   (1) low (2) moderate (3) high

6. Vegetative Cover Characteristics of Flooded Wetlands.
   (not applicable to non-flooded wetlands)

   a. Cover occupies more than 95% of wetland 0.5
   b. Cover occupies 76-95% of wetland in a peripheral band 1.5
   c. Cover occupies 76-95% of wetland with scattered open water areas [✓ 2.5]
   d. Cover occupies 26-75% of wetland occurring in dense patches or diffuse open stands 3.0
   e. Cover occupies 26-75% of wetland in a peripheral band 2.0
   f. Cover occupies 5-25% of wetland occurring in a peripheral band or diffuse open stands 1.0
   g. Cover occupies less than 5% of the wetland 0.5

7. Inundation Frequency

   a. Temporary surface water or saturated soil 1
   b. Seasonally or intermittently flooded 2
   c. Semi-permanent or permanently flooded [✓ 3]

8. Water Flow Rating Criteria

   a. Most of the water flows through the wetland in distinct channels or watercourses or has little flow of surface water during the year 1
   b. Channels or watercourses present, but a significant portion of water is sheet flow through the wetland 2
   c. Water flows across wetland uniformly and is not contained in channels or watercourses . . . . [✓ 3]

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3. Relative Commonness. Self-explanatory - a subjective assessment.

4. Recreational Potential. Examples of wetland areas with high recreational potential are Freezeout Lake near Fairfield, which is a state managed waterfowl production area. At the other extreme are roadside borrow pits with little to no potential.

5. Habitat Interspersion (diversity) ranked from low to high (1-3) according to the following criteria.

   A. High diversity (3) sites have at least three wetland vegetative types present with abundant edge of several different kinds. Life form zones of vegetation are broken into segments of variable size and shape. Habitat elements are small and scattered.

   B. Moderate diversity (2) sites have edges moderate in length and diversity, with some irregularity and scattering of vegetative type stands, but most stands are unbroken.

   C. Low diversity (1) sites have minimum length and types of edges. Vegetative types occur in concentric rings, with largely unbroken stands. May be composed primarily of a single, vegetative stand dominated by one species, such as cattail.

6. Vegetative Cover Characteristics. For permanently or seasonally flooded sites, an estimation of the ratio of vegetative cover to open water and distribution of vegetative stands is used as an indicator of habitat quality. Seven classes of cover/water ratio are employed, ranked numerically from 0.5 to 3.0 on the basis of assigned functional value.

7. Inundation frequency. This function is evaluated on the basis of 1) proximity of the site to potential floodway or floodwaters; 2) physical or biological evidence of flooding, such as saturated soil, debris, water marks, vegetation or lack thereof; 3) deposition of sediment; 4) or any other indication that flooding occurs. Inundation frequency affects flood control potential and habitat values for specific classes of fish and wildlife.

8. Water Flow Rating Criteria. Water flow rating is assigned a value of 1-3, based on the pattern and frequency of flow through the wetland. Continual or seasonal sheet flow is rated 3, while intermittent flow in a contained channel is rated I. This parameter [illegible] nutrient retention, sediment retention, and [illegible] potential.

Functional Value Parameters

The following six parameters are the Summary of Functional Values and afford a numerical Overall Site Ranking. Keys for specific paragraphs are found on the reverse of this form.

9. Relative Flood Storage Potential
   - a. Section 8, line a; Section 7, line a 1
   - b. Section 8, line b; Section 7, line b 2
   - c. Section 8, line c; Section 7, line c . . . . [✓ 3]

10. Sediment Control/Load Rating Criteria
    - a. Wetland does not receive detectable amounts of sediment - the watercourse is relatively sediment-free and accumulations are not evident 1
    - b. Wetland receives some sediment load but not enough to impact the plants or aquatic organisms using the site. The watercourse has sediment accumulations, but the water is not normally turbid . . . . [✓ 2]
    - c. Wetland receives heavy sediment loads that has impacted the plant/animal growth/use of the site. The watercourse has large accumulations of sediment and the water is usually turbid 3

11. Nutrient Retention Capabilities
    (circle one ranking)
    - a. Non-contiguous wetland with little accumulation of organic matter 1
    - b. Non-contiguous wetland with organic material accumulation 2
    - c. Contiguous wetland with little accumulation of organic matter 2.5
    - d. Contiguous wetland with organic material accumulation . . . . [✓ 3]

12. Relative Food Chain Support Potential
    - a. Low (Vegetative cover less than 5%, non-contiguous; no accumulation of organic matter 1
    - b. Moderate (Vegetative cover 6-25%; contiguous or non-contiguous to other supporting habitats; some accumulation of organic matter 2
    - c. High (Vegetative cover 26-100%, contiguous to other supporting habitats, some accumulation of organic matter . . . . [✓ 3]

9. Relative Flood Storage Potential. Ranking of 1 to 3 based on a subjective evaluation of Inundation Frequency (Para 7) and Water Flow Rating (Para 8). A flood storage rating higher than 1 should initiate additional evaluation and coordination with other concern agencies. At a minimum, it should be brought to the attention of MDT's Hydraulics Section. It is probable that only rarely will a wetland with significant flood control capacity be affected by a highway construction project.

10. Sediment Control/Load Rating. This criteria is rated from 1 (low) to 3 (high), based ont he presence or evidence of sediment deposition in the site, sediment sources contiguous to or which drain into the site, and the physical potential of the site to retain sediment and prevent downstream impacts. Factors affecting the retention potential are size, volume, flow characteristics (sheet flow versus channelized flow), and vegetative type (rooted emergents with a high cover density provide maximum retention).

11. Nutrient Retention Capabilities. Non-contiguous implies an isolated basin with no interactions with adjacent wetlands.

12. Food Chain Support Potential. A variety of factors is considered for this rating to include the probability of export to other habitats, especially those downstream. The relative rate of total biomass production and specific forage values as compared to the surrounding habitats should be considered in ranking food chain support.

13 Wildlife Habitat Values (Rating from 0 to 3)
(Based on cover, diversity, supporting habitats, and productivity)

Evaluation Group or Species

a.	Waterfowl	2
b.	Upland Game Birds	0
c.	Songbirds	1
d.	Raptors (non T&E)	2
e.	Furbearers	2
f.	Non-furbearing small mammals	1
g.	Large Ungulates (elk, moose, deer)	1
h.	Large Carnivores (bear, cat)	1
i.	Threatened or Endangered Species	2

Evaluate utilization by waterfowl/wildlife of wetland site for nesting, rearing young, feeding or protective cover based upon the following criteria (high, medium, low).

Use by wildlife group is significant in that loss or reduction by the wildlife use would have an adverse effect on the population of the species or wildlife in the general area (township) 3

Use by wildlife group is evident or probably and loss or reduction of the wildlife use may have an adverse effect on the local wildlife population (surrounding sections) 2

Use by wildlife group is incidental in that loss or reduction of wildlife use would have a negligible effect on the local population 1

Use by wildlife group is non-existent at any time during any year 0

Comments

---

14. Fisheries Habitat Values (Rated from 0 to 3)

(Based on utilization as spawning, nursery, feeding, or cover areas)

Evaluation Group

a.	Montana Fishes of Special Concern	1
b.	Trout Species	1
c.	Other Salmonids	1
d.	Non-Salmonid Game Fish	2
e.	Non-Game or Rough Fish	2

Evaluate utilization for each group for spawning, nursery, feeding, or cover areas based upon the following criteria:

Use by fish is significant in that loss or reduction of the fish use would have an adverse effect on the population of the fish in adjacent waters 3

Use by fish is evident or probably and loss or reduction of the fish use may have an adverse effect on the population of fish in the immediate vicinity but the magnitude of the reduction would be insignificant in relation to the total population of fish in adjacent waters 2

Use by fish is incidental in that loss or reduction of the fish use would have negligible effect on the population of fish in the immediate vicinity 1

Use by fish never present at any time in the year 0

---

15. Summary of Functional Values and Overall Site Ranking

Relative Flood Storage (Para 9)	3/3
Sediment control & Load (Para 10)	2/3
Nutrient Retention (Para 11)	3/3
Relative Food Chain Support (Para 12)	3/3
Wildlife Habitat Values (Para 13)	
Highest (Evaluation Group a,d,e,i)	2/3
Lowest (Evaluation Group b)	0/3
Fisheries Habitat Values (Para 14)	
Highest (Evaluation Group d,e)	2/3
Lowest (Evaluation Group a,b,c)	1/3
	16/24

Montana Department of Transportation
Helena, Montana

Wetland Report

BR 9015(11)
Swan River Bridge - West of Ferndale

Prepared by:
The Environmental & Hazardous Waste Bureau

Date: May 8, 1992

Wetland Inventory and Assessment
BR 9015(11)
Swan River Bridge - West of Ferndale

I. Description of Wetland Resource

The wetland was caused by initial borrow to build the bridge approaches which are periodically flooded by seasonally high water. The river does contribute to some of the development but the wetland is maintained permanently wet by ground water and springs. The wetland is below the head water of the drainage and the site elevation during normal flow is above the river's normal flow.

II. Wetland Assessment

III. Wetland Finding

IV. Site Forms

V. Photos

VI. Plans and Site Location Map

VII. Total Wetland Impact Equals .26 Acres

VIII. Contractor Incentives

No on-site mitigation is practical.

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II. Wetland Assessment and Inventory

Wetland assessment and inventories are in-house working documents prepared for internal review and for review by the cooperating regulatory agencies. Wetland documents are submitted to the interagency wetland group for concurrence.

This document is subject to review at Final Plan-In-Hand for compatibility with plan changes, potential for avoidance, erosion control and on-site mitigation potentials.

Mitigation proposals are subject to right-of-way agreements, cost-effectiveness and compatibility with the engineering criteria for road and bridge construction.

Wetland assessment is in accordance with the Interagency Memorandum of Understanding: Management and Mitigation of Highway Construction Impacts to Wetlands in the State of Montana.

Delineation in accordance with The Corps of Engineers Wetlands Delineation Manual (1987), along with The National List of Plant Species that Occur in Wetlands: Northwest (Region 9), US Fish and Wildlife Services.

References: Forest Habitat Types of Montana, R.D. Pfister; Vascular Plants of Pacific Northwest, D.L. Hitchcock; Soil Conservation Service, USDA Soil Survey of Montana by Counties.

LJI:D:ENV:200.kmc

III. WETLANDS FINDING

1) This FINDING provides documentation that this proposed project will minimize the destruction, loss, or degradation of wetlands. This FINDING also documents the steps to preserve and enhance the natural and beneficial values of the wetlands affected by this proposed project. This proposed project's impacts to wetlands will be in compliance with Executive Order 11990.

2) It has been determined that there are no practicable alternatives to this proposed project due to the following:

   The "no-build" alternative has been found to be inadequate to meet the needs of the travelling public in this vicinity. This alternate does not correct the poor alignment, narrow width, unsafe conditions, and/or traffic congestion at this location. Any of these conditions have been determined to be sufficient to warrant correction by this proposed project.

3) This proposed project has been determined to include all practicable measures to minimize harm to wetlands. This determination has been made through the mitigation process described on the following page(s).

4) Based upon the above considerations, it is determined that there is no practicable alternative to the proposed new construction in wetlands and that the proposed project includes all practicable measures to minimize harm to wetlands which may result from such use.

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V.

Swan River Bridge
Wetlands Type I

IV.

Site Forms

MDT/MDFWP
WETLAND SITE EVALUATION

Date May 20, 1992

Project No. BR 9015(11)

Project Name Swan River Bridge - West of Ferndale

County Flathead Drainage See Plans
R. , T. , Section

Site Location Station (on plan sheet) See Maps

Comments (route, milepost, etc.)

1. Classification (from Novitski, 1979)

Hydrologic Type(s) Type III A, B
Area

Vegetative Type(s) (1) Type III
Dominant Species
(a) Water Cress
(b) Cattail
(c) Willows
(d) Dogwood
(a)
(b)
(c)
(3)
(a)
(b)
(c)

2. Adjacent Supporting Habitats (Descriptive Summary)
Wetlands (type, vegetation, area, location, condition, wildlife values)
The supporting habitat is forested consisting of douglas fir/spruce with an understory of dogwood, Idaho fescue and forbs. Wildlife values are high due to good cover and forage. This is a main traveled area and does have a nearby population center.

Uplands (vegetation type, area, location, condition, land use, erosion potential, wildlife values)
Upland is a forested condition and is very good with a low erosion potential wildlife values are good.

3. Relative Commonness of Wetland Type in Area 2
(1) abundant (2) common (3) rare

4. Degree of Habitat Interspersion
Low = 1 Moderate = 2 High = 3

5. Vegetative Cover Characteristics of Flooded Wetlands.
(not applicable to non-flooded wetlands)

		Rating
a.	Cover occupies more than 95% of wetland	0.5
b.	Cover occupies 76-95% of wetland in a peripheral band	1.5
c.	Cover occupies 76-95% of wetland with scattered open water areas	2.5
d.	Cover occupies 26-75% of wetland occurring in dense patches or diffuse open stands	3.0
e.	Cover occupies 26-75% of wetland in a peripheral band	2.0
f.	Cover occupies 5-25% of wetland occurring in a peripheral band or diffuse open stands	1.0
g.	Cover occupies less than 5% of the wetland	0.5

6. Inundation Frequency

		Rating
a.	Temporary surface water or saturated soil	1
b.	Seasonally or intermittently flooded	2
c.	Semi-permanent or permanently flooded	3

7. Sediment Control/Load Rating Criteria

		Rating
a.	Wetland does not receive detectable amounts of sediment - the watercourse is relatively sediment-free and accumulations are not evident	1
b.	Wetland receives some sediment load but not enough to impact the plants or aquatic organisms using the site. The watercourse has sediment accumulations, but the water is not normally turbid	2
c.	Wetland receives heavy sediment loads that has impacted the plant/animal growth/use of the site. The watercourse has large accumulations of sediment and the water is usually turbid	3

8. Water Flow Rating Criteria

a. Most of the water flows through the wetland in distinct channels or watercourses or has little flow of surface water during the year 1

b. Channels of watercourses present, but a significant portion of water is sheet flow through the wetland **2**

c. Water flows across wetland uniformly and is not contained in channels or watercourses 3

9. Nutrient Retention Capabilities (circle one ranking)

a. Non-contiguous wetland with little accumulation of organic matter 1

b. Non-contiguous wetland with organic material accumulation **2**

c. Contiguous wetland with little accumulation of organic matter 2.5

d. Contiguous wetland with organic material accumulation 3

10. Relative Flood Storage Potential

a. Section 8, line a; Section 6, line a 1

b. Section 8, line b; Section 6, line b **2**

c. Section 8, line c; Section 6, line c 3

11. Relative Food Chain Support Potential (Based on percent vegetative cover and estimated relative standing crop).

a. Low (vegetative cover less than 5%; non-contiguous; no accumulation of organic matter) 1

b. Moderate (vegetative cover 6-25%; contiguous or non-contiguous to other supporting habitats; some accumulation of organic material) 2

c. High (vegetative cover 26-100%; contiguous to other supporting habitats, some accumulation of organic material) 3

12. Wildlife Habitat Values (Overall) (Based on cover, diversity, supporting habitats, and productivity) Rating (0-3)

Evaluation Group or Species

a.	Waterfowl	2
b.	Upland Game Birds	2
c.	Songbirds	2
d.	Raptors and Others	2
e.	Furbearers	2
f.	Non-furbearing small mammals	2
g.	Large Ungulates (elk, moose, deer)	3
h.	Large Carnivores (bear, cat)	2
i.	Threatened or Endangered Species	3

Evaluate utilization by waterfowl/wildlife of wetland site for nesting, rearing young, feeding or protective cover based upon the following criteria (high, medium, low).

Use by wildlife group is significant in that loss or reduction by the wildlife use would have an adverse effect on the population of the species or wildlife in the general area (township) 3

Use by wildlife group is evident or probably and loss or reduction of the wildlife use may have an adverse effect on the local wildlife population (surrounding section[s]) **2**

Use by wildlife group is low or incidental in that loss or reduction of the wildlife use would have a negligible effect on the local wildlife population . 1

Use by wildlife group is non-existent at any time during any year. NOTE: Use .3 to signify occasional use 0

13. Estimate utilization by fish for spawning, nursery, feeding, or cover.

a.	Montana fishes of special concern	0
b.	Trout "brookies"	0
c.	Other Salmonids	0
d.	Non-Salmonid Game Fish (pike, bass, walleyes)	0
e.	Non-Game or Rough Fish	0

Use by fish is significant in that loss or reduction of the fish use would have an adverse effect on the population of the fish in adjacent waters 3

Use by fish is evident or probably and loss or reduction of the fish use may have an adverse effect on the population of fish in the immediate vicinity but the magnitude of the reduction would be insignificant in relation to the total population of fish in adjacent waters 2

Use by fish is low or incidental in that loss or reduction of the fish use would have negligible effect on the population of fish in the immediate vicinity 1

Use by fish never present at any time in the year 0

14. Recreational Use Potential .... 1 / 2 / 3

15. Summary of Functional Values and Overall Site Ranking

Sediment control rating	2/3
Nutrient retention rating	2/3
Relative flood storage rating	2/3
Relative food chain support	3/3
Wildlife Habitat Values	
Highest (Evaluation Group ____)	3/3
Lowest (Evaluation Group ____)	2/3
Fisheries Habitat Values	
Highest (Evaluation Group ____)	0/3
Lowest (Evaluation Group ____)	0/3
	14/24

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Summary of Wetland Functional Rankings for Sites

Sites	Site Functional Ranking (1 thru 3)
Relative Occurrence	2
Habitat Interspersion	2
Cover: Water Ratio	3
Inundation Frequency	2
Sediment Control	2
Water Flow Rating	2
Nutrient Retention	2
Flood Control	2
Food Chain Production	3
Wildlife Habitat Value	
Waterfowl	2
Upland Game Birds	2
Song Birds	2
Raptors/Owls	2
Furbearers	2
Small Mammals	2
Ungulates (Deer)	3
Large Predator	2
Fisheries Habitat Value	
Montana Fishes of Special Concern	NA
Trout	
Other Salmonids	
Non-Salmonid Game Fish	
Rough or Non-Game Fish	

LJI:Q:ENV:13.kmc-1

DATA FORM

Date: May 20, 1992
Project Site: 3R 9015(11)
State: MT County: Flathead
Applicant/Owner: MDT
Plant Community #/Name: Douglas Fir/Idaho Fescue

Note: If a more detailed site description is necessary use the back of data form or a field notebook.

VEGETATION

Dominant Plant Species	Indicator Status	Stratum	Dominant Plant Species	Indicator Status	Stratum
1. Watercress	OBL				
2. Cattail	OBL				
3. Willows	FACW				
4. Dogwood	FACW				

Percent of dominant species that are OBL, FACW, and/or FAC 90% OBL
Is the hydrophytic vegetation criterion met? Yes X No
Rationale: The area is dominated by OBL Species

SOILS

Series/Phase: Typic Flueaquents
Subgroup: Undetermined
Is the soil on the hydric soils list? Yes X No
Is the soil a Histosol? Yes X No
Histic epipedon present? Yes No
Is the soil: Mottled? Yes X No
Gleyed? Yes No
Matrix Color: Black
Mottle Colors:
Other hydric soil indicators: Saturated
Is the hydric soil criterion met? Yes X No
Rationale: Visual

HYDROLOGY

Is the ground surface inundated? Yes X No
Surface Water Depth: 0-1"
Is the soil saturated? Yes X No
Depth to free-standing water in pit/soil probe hole: 0
List other field evidence of surface inundation or soil saturation. Visual
Is the wetland hydrology criterion met? Yes X No
Rationale: Visual

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes X No
Rationale for jurisdictional decision: Visual

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VI. Plans and Site Location Map

VIII. Contractor
Wetland Replacement Incentive

If the contractor options to provide wetlands, the contractor will be paid a predetermined amount of payment per acre to produce a predetermined amount of wetlands to the following specifications:

Payments will be a contract item as specified for developed wetlands approved by the Department.

A. General

1) Static ground water will be determined by pre-testing the site and demonstrating availability of sufficient water to maintain the wetland, including water rights.

2) The contractor shall be paid for the newly created acreage, with a minimum of 5 acres up to 10 acres.

3) The contractor shall obtain landowner permission and all permits and agreements necessary for wetland development and protection. A wetland easement must be obtained or the area deeded to a wetland agency, U.S. Fish & Wildlife Service, Montana Fish, Wildlife & Parks or Ducks Unlimited. The contractor shall obtain all necessary Corps of Engineers 404 permits and other federal and state permits when wetland development impacts existing wetlands.

4) All wetlands created by the contractor shall be approved by the department prior to construction and prior to final payment.

B. Definitions

The following definitions will apply to terms used in these provisions:

WETLAND - Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances, do support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

FLOODED WETLAND - A wetland that has standing water above the soil surface during some part of the growing season.

SATURATED WETLAND - A wetlands which has saturated soil conditions at or very near the soil surface during some part of the annual growing season.

GROWING SEASON - The growing season for the geographic region of this project is defined as approximately 110 days, beginning April 15.

WATER DEPTH - The average depth of a flooded wetland at the design water level.

DESIGN WATER LEVEL - The average water surface elevation, as measured by the engineer, on the planned wetland during the inspection period. This applies to surface and groundwater of both flooded and saturated non-flooded wetlands.

SHORELINE - The water's edge around the boundary of a flooded wetland.

REPLACEMENT WETLAND - Developed and revegetated areas in which the soil is saturated to its surface by groundwater or flooded to a maximum depth of 6.5 feet during the growing season. The water source may be runoff from direct precipitation, headwater, or backwater flooding, groundwater, or some combination of these sources.

C. Mitigation Requirements

1) The types and approximate sizes of wetland areas impacted by this project are listed below:

P1 - Palustrine Type 1 - Riparian forested wetland. Has cottonwood with scattered willow, dogwood, and/or alder. This is a seasonably or intermittently saturated type wetland.

P2 - Palustrine Type 2 - Willow/dogwood with shrubs or sedge/grass. This is a seasonally or permanently saturated type wetland.

P3 - Palustrine Type 3 - Sedge/rush/forb herbaceous vegetation, including cattail/bulrush if not flooded. This is a seasonally to permanently saturated type wetland.

R1 - Shallow march or pond, including old river channels. This type of wetland is seasonally, or permanently flooded to a maximum depth of 6.5 feet. It usually includes some bordering emergent vegetation, such as cattails or bulrushes, which is rooted under the water.

2) All of the above types are acceptable for replacement wetland development. A minimum of 4.0 acres of type R1 wetland shall be developed for wetland replacement, or the contractor may elect to construct all of the required and optional acreage of type R1. Not more than 1.0 acres of credit will be allowed for any one of the types P1, P2, or P3 wetlands. CONVERSION OF AN EXISTING WETLAND TO A DIFFERENT TYPE IS NOT ACCEPTABLE. UNAUTHORIZED ACTIVITY IN EXISTING WETLANDS MAY RESULT IN LEGAL ACTION BY THE CORPS OF ENGINEERS UNDER THE AUTHORITY OF THE SECTION 404 REGULATORY PROGRAM.

3) The contractor shall submit a plan to the engineer specifying the intended development of each wetland replacement site. The plan shall contain a legal description and estimated area of each site, a description of the existing land use or vegetation, specify the type of replacement wetland, and explain how it is to be developed. The plan shall include maps, sketches, cross-sections, and diagrams as necessary for clarification. The plan shall also include sufficient test data; such as test hole/excavation data, precipitation/runoff data, or water appropriation documents as necessary to allow the engineer to concur with the plan's design water level determination. If the engineer deems this data/information insufficient, the engineer may require additional documentation of water availability before acceptance of the plan. The contractor may request verification from the engineer that the mitigation site is not an existing wetland, or that the site selected is

acceptable for wetland development, not later than 20 days prior to beginning wetland construction.

4) The contractor shall notify the engineer in writing of the date that operations will begin on a wetland replacement site at least 48 hours in advance of disturbing the area.

D. Wetland Design

1) Slope and contour of wetland development sites:

a) At least 50% of the shoreline of a developed flooded wetland shall have a slope of 10:1 or flatter. No more than ten percent of the shoreline of a flooded wetland shall have 3:1 or steeper slopes. Islands are excluded from the above requirements.

b) Flooded wetlands shall have an average water depth between 1 foot and 6.5 feet during the inspection period, except as necessary to provide required slope near the shoreline.

2) Islands:

a) Flooded wetlands larger than 2 acres shall have approximately one island per two acres of flooded area. Islands shall have a minimum of 400 square feet and a maximum of 500 square feet of surface area above the water at design water level. Islands shall be a minimum of 125 feet from shoreline and a minimum of 125 feet apart. A minimum of 25% of the surface area of each island shall be at least 2 feet above the design water level. The exposed area of islands is included in the total area of wetlands constructed.

3) Topsoiling of Wetlands:

a) All available topsoil shall be salvaged from areas to be developed as replacement wetlands prior to beginning excavation. The topsoil shall be stockpiled outside the construction limits.

b) Following final grading, the contractor shall place topsoil on all disturbed areas of the developed wetlands above the water line to a minimum depth of 2", including the shoreline of flooded wetlands. If insufficient salvageable topsoil is available from wetland development areas, the engineer may require that topsoil salvaged from the highway project be used in the wetland development. Topsoil obtained from the highway development for use in topsoiling wetlands will not be paid for separately, but will be included in the cost per acre of wetlands mitigation.

c) The contractor shall obtain approval from the engineer prior to placement of the topsoil.

4) Revegetation of Developed Wetlands:

a) All developed wetland sites, including the non-flooded area of islands, shall be fertilized and seeded according to the project seeding special provisions, subsequent to planting of shrubs or trees. Flooded areas are not to be seeded or fertilized.

b) all disturbed areas that are not flooded in wetland development sites, including islands, shall be seeded.

c) All areas outside the confines of wetland development sites that are disturbed by the contractor during the construction or development of the wetland shall be reclaimed to the satisfaction of the engineer at no cost to the State.

E. Inspection and Acceptance

Each phase of wetland development (see item 5) shall be subject to inspection by the engineer prior to payment. Upon notification by the contractor that a wetland is completed, the engineer will conduct a final acceptance inspection.

F. Method of Measurement

Wetland mitigation will be measured by the acre to the nearest 0.1 acre, or above mean water level, for the number of acres mitigated in accordance with the plans and specifications.

G. Basis of Payment

1) Wetland mitigation will be paid for at the agreed price per acre which shall be full compensation for furnishing the following: labor, tools, equipment, incidentals; materials including seed, fertilizer, and plant material; and for obtaining land usage permits, agreements, water rights or permits and easements that are necessary to complete the work in accordance with the contract.

2) All costs incurred by the contractor through the use of topsoil obtained from the highway portion of the project for wetland development shall be included in the agreed price for Topsoil Salvaging and Placing. No additional payment will be allowed for increased haul distance and extra handling.

The cost of removing and replacing topsoil in the wetland development areas shall be included in the agreed price for Wetland Mitigation.

Payment will be allowed for development of wetland acreage that exceeds the required as determined by the Department.

No payment will be allowed for existing wetlands incorporated into newly created wetlands.

Percentages of the contract quantity for wetland mitigation will be allowed for payment on progress estimates as follows:

a) 15% - When wetland mitigation plans are submitted and accepted.

b) 60% - When wetland replacement areas are graded and topsoiled.

c) 30% - When wetland replacement areas are fertilized and planted.

d) 100% - When wetland replacement areas are accepted by the engineer.

LJI:Q:ENV:4.kmc

Appendix D: Studies and Reports

Private Consultant's Report

FLATHEAD COUNTY ROAD DEPARTMENT
Mailing Address: 800 S. Main
Delivery Address: 1249 Willow Glen Drive
Kalispell, Montana 59901
Phone 752-5300 Ext. 353 or 354

MASTER
FILE
COPY

cc: Lajoie
~~Jim Hill~~
Edrie Vinsc.
4-16-93

RECEIVED
APR - 5 1993
MONTANA DEPARTMENT
OF TRANSPORTATION
KALISPELL, MONTANA

APR - 6 1993

April 1, 1993

Mr. Larry Brazda
Montana State Highway Department
P. O. Box 400
Kalispell, MT 59903-0400

Dear Larry:

I thought you might like a copy of Mr. Lichtenstein's report on the Swan River Bridge.

I don't see that it says anymore than what the State or County has said in the past. The County Commissioners will also get a copy of this report from me.

Sincerely,

Marc E. Pitman
Superintendent

MEP:lmw

enclosure

DATE REC'D 4-9-93
BRIDGE BUREAU
CHIEF
ASSIST CHIEF
ADMIN. ASSIST
AE/MISS
AE/BUTTE
AE/GT FLS
AE/GLEND
AE/BLGS
EVALUATION
NBIS
SHP DWGS
GVW
CHECKERS
CADD
FILE

ABBA LICHTENSTEIN, P.E., DR. ENG. (hc)
CONSULTANT
26 Trafalgar Road
Tenafly, New Jersey 07670

(201) 567-7381
Fax (201) 567-3741

National Council of Engineering Examiners
Cert. # 4038

March 15, 1993

Save the Swan River Committee
C/O Tammy and Gary Riecke
P.O. Box 363
Bigfork, Montana 59911

Re: **Swan River Bridge at Ferndale (Kearney Bridge)**
Flathead County, Montana

Gentlemen:

As requested I came to Bigfork on Friday, February 19, 1993 and commenced my fact finding assignment regarding the Swan River Bridge dilemma: rehabilitate or replace.

General

Bigfork, Montana is a charming rural town full of shops, galleries, restaurants and similar establishments. Outside of town there are fields, hills, streams and mountains. The roads and bridges are being maintained by Flathead County which is the governing body for all of Bigfork except the School Boards.

My Activities in Bigfork included the following:

1. I reviewed several structure inventory and appraisal (SIA) sheets provided by the Committee. They included Swan River Bridges at Bigfork, dated 1989, and for the Kearney Bridge (1992), with some pertinent notations.
2. I visited the sites of these two structures, took some photos, made some

measurements and notes. I was assisted by Messrs. Riecke, Brown, Claude and others. The observations included the superstructure of the truss; several panels and connections underneath; and the timber approach spans at theFerndale location.

3. I met with the Flathead County Superintendent, Mr. Mark Pitman and the County Supervisor of Bridges, Jack Lingo and discussed the situation.
4. I interviewed a Mr. Art Whitney who has lived in the area for all of 82 years and was familiar with the history of the Swan River and the two bridges.
5. Other citizens of Bigfork also contributed information on traffic patterns, accidents and more.

CAVEAT, the sum total of my activities cannot be considered an in-depth inspection, as specified by AASHTO manuals, but provided me with sufficient information to evaluate the problem at hand. An in-depth inspection should include calculations, material testing, underwater and scour probing and a tactile hands on inspection of all the elements of the bridge.

FINDINGS

1. The Kearney Bridge at Ferndale is composed of a metal truss (probably steel) about 152 feet long, 8 panels at 19'. It is of a patented Pratt design with counters, and was built by the A.Y. Bayne & Co. of Minneapolis in 1911. The steel was provided by Illinois Steel Company. There is evidence that the bridge has been impacted by a truck which severed the first vertical and displaced the second vertical, both on the downstream side. The repair of the broken member consists of re-welding and a cable and lasted 40 years (Whitney). The floor beams and connecting rivets and bolts are probably original; the stringers and deck are timber. The bridge is located several hundred feet upstream of a dam (1900+/-). Floods in 1930 (Whitney) caused the approach fill to be washed out at both ends. The County "converted" the abutments to piers and added several timber spans on each end of the truss. The 1992 SIA sheet indicated that the historical significance (037) was "not eligible". "5" means not eligible. The average daily traffic was marked as 100; no trucks (because of a 3Ton posted limit). The bridge provides about a 15' roadway between the trusses. Informally, I was told, that two accidents had happened in the vicinity of the structure in the last five years. The horizontal alignment at the approaches is poor but visibility is adequate. There is ample vertical clearance. The truss needs a paint job.

2. The bridge in Bigfork is a similar, but a shorter, pratt truss of Illinois steel and constructed by the Bayne Co. It appears to have been painted recently, and has a steel stringer and timber deck roadway. Some elements of the trusses need repair or tightening. It is located in the vicinity of a pumped storage power plant (1900-Whitney), and the truss supplements and compliments the gateway into Bigfork. The SIA sheet of 1989 has a "5" notation, which means, it was found to be not eligiblefor the REGISTER..

Historic Matters

The State Historic Preservation Office (SHPO) and the Montana DOT should be contacted early to find out what is the eligibility status and how determined for the two bridges. Of course, the Kearney Bridge issue is more pressing. If the Bridge status (eligibility) is modified to be "eligible" then a new ingredient has been added and certain Federal processes need to take place, notably 106. If the answer is definitely not eligible , then the problem of rehab vs. replace will have to be solved on an economical/political basis.

Discussion

The 1911 Kearney Truss (Ferndale) can be rehabilitated. The timber stringers should be replaced and the timber approach spans reconstructed. The truss should be cleaned and painted. To evaluate its capacity, accurate live load rating calculations should be made including material sampling. A prudent activity may be a nondestructive load test, with

the help of the Montana State University (Bozeman). Independent appropriate guide rails will need to be installed along the trusses. After the indepth inspection, calculations and testing, the cost of such rehabilitation can be estimated with confidence. The rehabilitation work will provide for a greater and more reliable live load capacity, but the width of the roadway will not be increased. A one lane bridge, however, can be properly signed and signaled, if the traffic counts are small and visibility or signals are adequate.

A new structure at this location is proposed and will be designed and constructed by the Montana DOT in accordance with their standards. The cost of such a bridge should consider the expense of approach alignment improvements, right-of-way, and demolitions of the existing bridge. A study may be needed to decide whether a sidewalk and/or bicycle path on the new bridge would be desirable features.

The truss at Bigfork should be placed on a regular maintenance program so that it can be kept in service for many years. This is especially true for this truss, which should be judged historically eligible, when considered in concert with the Power Plant and the Gateway to Bigfork.

Summary

I believe the following steps have to be undertaken before a final decision can be reached:

1. Contact State and Federal agencies to learn what Historic Eligibility status is for the Kearney Bridge. At the same time a discussion of the historicity of the Bigfork Bridge may commence (?)
2. If the rehabilitation alternate is to be explored by the citizens and County, prepare a "rationale" why a one lane bridge at Ferndale is sufficient. If such a solution is acceptable to the State and FHWA, then the rehabilitation costs can be borne by these agencies as in a "new bridge" scenario.
3. In cooperation with the County, an indepth inspection, calculations and testing should be performed for the two Swan River structures. These activities will provide a more accurate live load rating for the structures and possibly permit the crossing of fire and maintenance trucks, buses and public safety vehicles.
4. In cooperation with the County, establish a maintenance program for the Bigfork Bridge.

I trust that you will find this Informal Report satisfactory and of assistance to you in resolving the Swan River Bridges at Kearney and Bigfork dilemma in an acceptable manner to you, the Flathead County citizens and governing body.

Thank you.

Very truly yours,

Abba Lichtenstein

Consultant

AL/dl
encl.

Appendix D: Studies and Reports

Visual Impacts Report

Visual Impact Assessment

Swan River Bridge - West of Ferndale
Flathead County
BR 9015 (11)
C# 1132

Date of Assessment: **April 19, 1993**
Weather:Spring Rains all day, 45' to 50'F, overcast

Date of Report: **April 20, 1993**
Revised: August 12, 1993

Assessment Performed by
Shannon R. Schultz, CE Spec I - MDT and,
Jeff Berglund, Biologist - MDT

Abstract

This assessment was done to determine the visual impacts of the existing aesthetic values in and around the Swan River valley by the bridge located in T27N, R19E, Section 32, two miles East of Bigfork and west of Ferndale in Flathead County, Montana. Furthermore, the intent of this report is to examine what impacts would result if Alternative C - Build a new 163' Bridge is built. This Visual Impacts Assessment was done as part of an Environmental Assessment.

Lists of possibly unfamiliar terms and their definitions are included in the Appendix. Additionally, the applicable laws and regulations concerning Visual Impact Assessments are included in the Appendix of this report.

Background

Flathead County, in cooperation with the Montana Department of Transportation, is planning to improve a bridge over the Swan River near Ferndale on a paved county road (off-system) approximately 2 miles northwest of Ferndale and 2 miles east of Big Fork, Montana. The project is located in the eastern ½ of the southeast ¼ of Section 32 in Township 27 North, Range 19 West. The road which contains the crossing is owned and maintained by Flathead County.

This proposed action (described in the Environmental Assessment as Alternative C) consists of replacing the existing 276-foot pony-truss bridge (timber approach spans included) with a new 163-foot long concrete structure. A new bridge would provide for better safety meeting current highway standards, including new approaches at both ends. The proposed bridge includes a 26-foot wide roadway.

Guardrail would be placed at the proposed bridge ends. The proposed bridge would have 30 mile-per-hour design speed as determined by the sharp curves at both bridge approaches. The horizontal alignment found on Alternative C would be shifted 10 feet downstream and run parallel to the existing centerline. This would lessen the sharpness of the approach curves. The proposed bridge would meet all design standards for off-system bridges.

The Swan River Bridge - West of Ferndale carries residential/commuter traffic serving the Big Fork and Ferndale vicinity. This bridge location also provides for the most direct route from Ferndale to the towns of Swan River and Echo Lake. The nearest major transportation routes are as follows: U.S. Highway 83 (also known as Federal Aid Primary Route 83) is approximately 2½ miles due east and also 2½ miles due north of the bridge. U.S. Highway 35 (also known as Federal Aid Primary Route 52) runs north and south through Big Fork, 2 miles due west. Highway 35 is the only logical route from Pablo to Kalispell on the east side of Flathead Lake. Highway 83 lies farther east of Flathead Lake serving access to many recreation areas from as far southeast as Salmon Lake.

A smaller arterial connects Highway 83 and 35 which is less than 100 feet south of the bridge site; Federal Aid Secondary Route 209. Secondary Route 209 is approximately 4 miles long starting in Big Fork, then going east through Ferndale terminating at Highway 83.

There is a gravel road that parallels Secondary route 209 on the north side of the Big Fork Dam reservoir which heads west from the bridge and terminates at the Bigfork Dam. County personnel claim that joggers and bikers use this road for recreation.

The Swan River Bridge - West of Ferndale is an 82-year-old steel truss bridge. It is **functionally obsolete *and* structurally deficient** having a sufficiency rating (SR) of 20.2 [*MDT's Structure Inventory and Appraisal* - 06/13/89]. Therefore, as set forth in MDT's Bridge Management Program criteria for off-system bridge funding, it is eligible, and has been nominated by Flathead County, for replacement.

The existing bridge is structurally deficient because the deck, wearing surface, railing, bearing devices, paint, piers, caps, and bracing are in need of repair. Additionally, timber members in the approach spans are rotting. Because of the deteriorating structure, the bridge has a posted safety load of 3-tons.

A standard load rating for bridges with the types of traffic the bridge carries is 36-tons. Because of the low rating, fire trucks, school buses, garbage and septic trucks, and any other larger-than-normal truck loads cannot cross the bridge. This fact puts people's lives and properties at risk while also increasing operating costs for local services as well as other industries such as TCI Cable and United Parcel Service.

The existing bridge is functionally obsolete because it has a 3-ton posting for safety where its use warrants a 36-ton loading. Additionally, the existing structure is 16.5 feet wide serving only one lane of traffic. The standard minimum width bridges is 24 feet which serves two, twelve-foot lanes of traffic.

A formal Traffic Analysis across the existing bridge has not been done. County personnel say that between 150 and 200 vehicles cross it daily. Records from Highways 83 and 35 have shown an annual increase of 8% in traffic volume.

From this data, it may be deduced that a 5-8% increase has occurred across this bridge. In 20 years, 300 to 400 vehicles are expected to cross the Swan River daily at this location if current growth patterns persist.

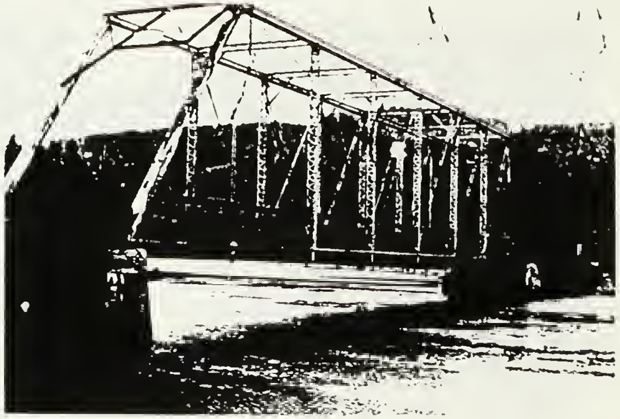
The proposed bridge would allow larger trucks and buses into the area. Because of the sharply curved approaches to the bridge, speeding across the bridge is discouraged and can be dangerous. However, because there is a steep downhill approach coming from Ferndale, some wintertime accidents have occurred.

Over the last five years, two, single vehicle accidents have been recorded in the vicinity. One accident occurred close to the bridge (within 150 feet of intersection); the car lost control while failing to negotiate a curve. The other was an east-bound car on Highway 35. No fatalities occurred. Both accidents occurred in 1988.

The proposed project shifts the centerline of the road downstream 10 feet. By so doing, the sharpness of the approach curves are lessened thereby increasing safety. The proposed project additionally raises the elevation of the bridge deck two (2) feet which decreases the steepness of the approach when turning off of Route 209.

Findings

It has been determined that there are 5 Viewsheds of the bridge. Each of these viewsheds and their discussions are presented individually in the following pages. Since the proposed bridge's alignment is 10 feet downstream of the existing bridge, all viewsheds from the bridge would remain virtually unchanged with the exception of the truss. The proposed bridge would eliminate the truss members so they would not obstruct a person's view of the river, mountains, and ridge tops while crossing. A second change from the bridge would be additional exposure of Route 209 while crossing the bridge going south on Route 209. Due to the proposed 2.5 increase in elevation of the bridge deck and the 10-foot shift in alignment downstream, additional exposure of Route 209 would be furthered by the clearing of mature trees which currently mask Route 209. The trees need to be removed to accommodate the safer alignment.



Viewshed 1 - At the Boat Launch Between Route 209 and the South Edge of the Swan River - From this view, the bridge deck is higher than eye-level while standing at the river's edge, though the water level varies. The closest piece of the bridge is the south end; about 30 feet away. Existing conditions as well as expected conditions after construction of Alternative C remain at medium. Each condition earned a score of 4 for Visual Quality (a 1 is very low, while a 7 is very high like Niagara Falls or Yosemite Park).

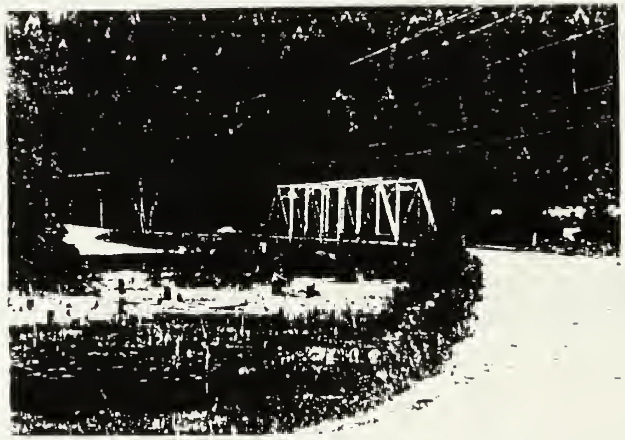
From this perspective, the bridge is so close it dominates. The river is second, the mountains and sky third in what attracts attention to the eye because of the relative scale of the bridge. As can be seen in the picture, the surrounding mountains are huge and seem to contain or hold the river valley, including the bridge. The existing timber approach spans are visible from this perspective. Their decaying state is noticeable.

Viewshed 2 - Looking Left to the Bridge from Route 209 on the South Side of the Swan River - This picture was taken from the shoulder of Route 209 about 1200 feet from the center of the bridge and approximately 35 feet higher. A person traveling this close to the shoulder would be going the other way (heading east toward Bigfork) and would not likely look this direction. The westbound passenger would not see the bridge until after coming down the crest on Route 209 but would likely be looking to his left at the Swan River Valley and surrounding mountains as the view to his or her right is densely forested hillside offering little diversity in scale, depth, or texture.

Additionally, the travelling speeds on Route 209 are between 50 and 60 mph so the view of the existing bridge would be short in duration; on the order of 2 or 3 seconds. Also, since this perspective is farther away, the bridge is moved to the middle-ground and looses much attention because of its small scale relative to the vast background of mountains and sky. The Swan River is in both middleground and background providing depth while looking up the river valley. The new existing bridge acts as a hiatus from this perspective, as a new bridge would. However, the proposed improvement as defined in Alternative C would detract more from this viewpoint than the existing structure primarily because of the loss of trees that would be removed. The existing viewshed has a score of 5 for overall Visual Quality while Alternative C would have a score of 4.

Viewshed 3 - Off Gravel Road on the North Side of the Swan River Looking Upstream - This picture was taken 2 feet from the water's surface on the north bank of the Swan River to emulate what a floater might see while looking upstream. The bridge is approximately 1200 feet away. Once again, the bridge is somewhat lost in the beautiful panoramic background of green mountains and sky. The river appears to be pooled like a lake in the foreground but then disappears as the eye moves upstream adding depth. While gazing about, the eye encounters cut-off stumps poking through the river's surface as well as the bridge. Because of these and one other man-made encroachment (see next page), the overall score for Visual Quality is medium: a 4 for the existing and a 3.33 for the proposed. The lower score for the proposed project is attributable to the loss of the trees which would expose more of Route 209 and the cars travelling upon it.

Viewshed 3 - Looking Straight Across Swan River; Bridge to the left - Note that this viewshed is the same as the previous one; Viewshed 3. The purpose of this picture is to show what scenery lies to the right of the bridge. This view is clearly visible as one pans right as there are no visible obstructions while looking across the river. One can see this view in their peripheral vision while looking at the bridge. The detraction is the large fill slope directly across the river seen in this photo. The fill and rip-rap disrupt the harmony of the setting. The rough texture of the gray Class I and Class II rip-rap contrasts with the colorful, smoother textured foliage and imposes on the riverbank and mountainside. Additionally, guardrail can be seen above this are which also detracts from the visual experience,



Viewshed 4 - Looking South Across Bridge While Standing on Center of Curve of paved Road that Serves Local Residents on the North Side of the Swan River - This viewpoint is included to illustrate what a local resident sees while leaving the area and crossing the bridge heading for Bigfork or Ferndale. This location is also where the gravel road paralleling the Swan River on the north side joins with the paved road. Note how the existing bridge dominates the view due its close proximity.

Most of Route 209 is hidden from view because of its higher elevation. Also, the wooden approaches appear in greater detail as well as the aged state of the bridge. Warning signs for the crossing and load rating are also visible. Little of the scenery is viewable without looking left or right (up or downstream). Therefore, the overall score for Visual Quality for the existing condition is 3.7, while the overall score for Alternative C is 4, a very minor positive impact. The improvement in visual quality is due to the absence of the timber approaches, signs, and truss. Also, the large gray fill encroaches on the aesthetics of the area from this view as it can be easily seen while looking downstream and across the river (shown in second picture for Viewshed 3).

Viewshed 5 - Upstream 1500 Feet While Looking Downstream to the West at the Bridge from the South Bank of the Swan River - This picture was taken to emulate what a floater might see moving toward the bridge. Because of the thick shrubs, bushes, and trees along the right-hand side of the roadway while traveling west, it is unlikely that a traveler would be able to see the bridge from the roadway -- even during winter months.

Like before, with an increase in distance comes an increase in the field of view. The bridge site appears small in scale compared to the context in which it is located. From this perspective, the bridge site is less imposing by playing less of a role in the overall aesthetics. Details such as the timber approach are no longer seen. The horizon formed by ridge tops and sky now attract more attention. In the autumn, the aspen trees and shrubs would fill the mostly forested valley with patches of yellow and reds attracting more attention to the "natural" and away from the "man-made" surroundings. Resultingly, a score of 5.33 for overall Visual Quality is given to both the existing and Alternative C conditions.

Results

The above data suggests that the proposed bridge improvement would cause minor detriments to the aesthetic value and **overall** visual quality in the area. The findings demonstrate that the farther one gets from the bridge site, the less impact it would have on the visual qualities represented in the area. The converse condition is also true: the closer one gets to the bridge site, the greater its affect on visual experience.

The *majority of the people* seeing this bridge would be the ones traveling east and west on Route 209 at more of a "macro" level -- when the bridge is in the distant middleground or part of the background.

The *people most frequently* seeing the bridge site are the visiting recreationists to the area and/or the local residents coming off of Route 209 and crossing the Swan River in order to get to their homes. At this "micro" level -- where the bridge is more a part of the middleground and foreground -- the minor changes in the aesthetics of the area would be more noticeable due to proximity. However, the changes outlined in this assessment are shown to be minor because bridge crossings at this location plays such a small role in the general visual quality of the beauty in the Swan River Valley.

Conclusions

Though the data shows no **significant** losses in the visual qualities of the area from the crossing improvement the Swan River as described in Alternative C , it is anticipated that the residents in the area and of Bigfork would perceive a change in the over-all visual quality of the area. This change may be attributed to the absence of the steel truss that has been standing since 1911. The truss has become a signal to westbound motorist informing them that Bigfork is 2 miles away. Also, for floaters, the bridge has been a signal to move toward the left bank and prepare for pulling into shore since this is the last easily accessible take-out before the Bigfork Dam.

While in truth, if Alternative C were built, there would still be a bridge there, only a different looking one. It would be wider and safer and a little higher, and some of the trees would be gone. Where there is now an 82-year-old steel-truss bridge, a new concrete stringer-type bridge would stand.

If there is controversy between the aesthetics of the proposed bridge and the existing bridge it would be problematic -- borne out of what is **perceived** by the different viewers. Arguably, the fact of change is the source of discomfort rather than its nature or the change itself. The perceived visual impacts are made up of the *visual resource* change combined with the *viewer response*. This report demonstrates that the **visual** resource change is **minor** while the **viewer response** varies with each viewer.

End Notes
This assessment has provided an objective approach to quantifying characteristics which are difficult, at best, to qualify. This conclusion was arrived at using a manual entitled "Visual Impacts Assessment for Highway Projects" provided by the U.S. Department of Transportation's Federal Highway Administration and the Office of Environmental Quality. The goals of this manual are to provide a means of objectively quantifying that which is subjectively perceived through a qualitative analysis. This is done using the concepts of art and architecture involving vividness, intactness, unity, form, lines, color, texture, and other art and architectural techniques. The purpose of this manual is to provide a background of information in order to perform a step-by-step outline for a Visual Impact Assessment. For more information on how this assessment was prepared, consult the manual mentioned above.

APPENDIX A - LEGAL CONTEXT

A number of federal laws and regulations bear on the assessment of highway project visual impacts. Some of their most relevant portions are abstracted here for reference.

Historic Preservation Act of 1966 - Section 106 require federal agencies with jurisdiction over federal, federally-assisted, or federally-licensed projects to "take into account the effect of the undertaking on my district, site, building, structure, or object that is included in the National Register." This has been amended to provide equal consideration for any feature determined to be eligible for inclusion in the National Register.

The 1976 regulations implementing this act define "criteria of adverse effect" (Section 800.8), including the "introduction of visual, audible or atmospheric elements that are out of character with the property or alter its setting."

Department of Transportation Act, Section 4(f) - This section was amended by the Federal-aid Highway Act of 1968 to read: "It is hereby declared to be the national policy that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites ... The Secretary shall not approve any programs or project which requires the use of any publicly owned land from a public park, recreation area, or a wildlife and waterfowl refuge ... or any land from an historic site .. unless (1) there is no feasible and prudent alternative ..., and (2) such program includes all possible planning to minimize harm to such park, recreational area, wildlife and waterfowl refuge, or historic site resulting from such use."

The National Environmental Policy Act of 1969 - Section 101 (b) (2) states that it is the "continuous responsibility" of the Federal Government to "use all practible means " to "assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings."

Sections 102 (2)(A) and (B) of the National Environmental Policy Act (NEPA) require all agencies of the Federal government to "... utilize a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decision-making which may have an impact on man's environment;" and to "identify and develop methods and procedures ... which will insure that presently unquantified environmental amenities and values may be given appropriate consideration in decision-making along with economic and technical considerations."

C.E.Q. Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act, 1978 - Section 1502.16, Environmental consequences: "... The discussion will include the environmental impacts of the alternatives including the proposed action (and) any adverse environmental effects ...It shall include discussion of .(g) urban quality and cultural resources, and the design of the built environment."

Section 1507.2 Agency capability to comply: Agencies shall " ..identify methods and procedures ... to insure that presently unquantified environmental amenities and consideration."

Section 1508.8 Effects: "Effects and impact .. are synonymous. Effects include ecological,

...aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions which may have both beneficial and detrimental effects."

Department of Transportation Notice 5610.1C, Attachment 2-Guidance on Format and Content of Environmental Documents - "This notice implements a Secretarial decision of 7-31-77, as recommended by the DOT Task Force on Design, Art, and Architecture in Transportation, that, where relevant, the Department will require consideration of design quality to be reflected in environmental impact statements (EISs). This notice is to provide further impetus to c constructive blending of aesthetics and function ... Design quality considerations are relevant and are to be documented in EISs where such facilities as ..major urban highways are in sensitive locations (such as parks or historic district), or where public use areas are involved. These examples are not all-inclusive."

Federal Highway Administration supplementary guidance and procedures for EIS processing. Appendix FHPM 7-7-2, 1981 - "prudent use of photographs, illustrations and other graphics within the text can be effective in giving the reviewer an understanding of the area ..."

"Visual impacts: this discussion should include an assessment of the temporary and permanent visual impacts of the proposed action. Where relevant, the EIS should document the consideration given to design quality, art, and architecture in the project planning. These values may be important for facilities located in sensitive urban settings."

Wild and Scenic River Act, as amended through November 1978 - Section 1(b) states, "it is hereby declared to be the policy of the United States that certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, other similar values shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations..."

Section 2(b) requires that river segments in the National Wild and Scenic Rivers System :be classified, designated and administered as one of the following:

> (1) Wild river area - Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.
>
> (2) Scenic river areas - Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by road.
>
> (3) Recreational river areas - Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past".

Section 10(a) directs that "each component of the national wild and scenic rivers systems shall be administered in such manner as to protect and enhance the values which caused it to be included in said system without, insofar as is consistent therewith, limiting other uses that no not substantially interfere with public use and enjoyment of these values. In such administration primary emphasis shall be given to protecting its aesthetic, scenic, historic, archaeologic, and scientific features.

APPENDIX B - DEFINITIONS

Systematic approaches to visual assessment and management are relatively new and a complete unified vocabulary has no yet developed. Several different federal land-managing agencies have instituted visual resource management (VRM) systems. There are many similarities between the terms used in these systems, but also some major differences.

These alternative terminologies may be a source of confusion, particularly to EIS reviewers; synonymous terms, where they exist, in parentheses follow each definition. In each case, the first synonym is from the "Visual Management System" of the National Forest Service; the second is from the "Visual Resource Management System" of the Bureau of Land Management, and the third is from the "Landscape Architecture System" of the Soil Conservation Service.

Aesthetics - The science or philosophy concerned with the quality of sensory experience; in this report, limited to visual experience.

Key View - A view of or from a project that is representative of the views that people will actually have after the project is completed; also, an important or critical view of a project (USFS:landscape control point; BLM: key observation point).

Landscape Components: - The basic physical elements that make up the landscape, including landform and land-cover (water, vegetation and manmade development)(USFS:characteristic landscape; BLM:landscape features; SCS: visual element).

Landscape Unit - An area of distinct, but nor homogeneous, visual character which is spatially enclosed at ground level; a visually identifiable place or "outdoor room"; useful for visual assessment and management, particularly of visual quality.

Landscape Type - A visually homogeneous area formed by a combination of relatively uniform landform and landcover, such as residential hillside or forested valley bottom; useful for visual assessment and management, particularly of visual compatibility.

Regional Landscape - A large area defined by similar patterns of landform and land cover, also. the characteristic visual resources of such an area; examples include the Blue Ridge and the Atlantic Coastal Plain; regional landscape classification is useful as a framework for visual assessment (USFS: character type; BLM; physiographic province: SCS; frame or reference).

Viewer Response - Measure of viewer response to change in visual resources include viewer exposure, viewer sensitivity, cultural significance and local values.

Viewers - The people who are likely to see a project; a basic distinction among viewer groups is between highway users, who will have views *from* the road, and highway neighbors, who will have views *of* the road, other groups can also be distinguished by the probable nature of their visual response to highway facilities (USFS;visitors; BLM:users; SCS: viewers).

Viewer Sensitivity - The viewer's variable receptivity to the elements within the environment that he is viewing, affected by viewer activity and awareness; a person cannot readily notice every object and all the attributes of the objects that compose the total visual environment that compose the total visual environment (USFS: sensitivity level; BLM: visual sensitivity; SCS: landscape use).

Viewshed - All the surface areas visible from an observer's viewpoint; also, the surface areas from which a critical object or viewpoint is seen (USFS:seen area; BLM:distance zone; SCS: visibility).

Visual Assessment Unit - A subdivision of the linear viewshed of a highway project used to more precisely locate and assess site-specific visual impacts of the project; the end points should be based on visual distinctions, such as landscape unit boundaries.

Visual Character - The visual character of a landscape is formed by the order of the patterns composing it, the visual elements of these patterns are the form, line, color, and texture of the landscape's components; their interrelationships can be described in terms of dominance, scale, diversity, and continuity (USFS: dominant elements; BLM: basic elements).

Visual Compatibility - The degree to which development with specific visual characteristics is similar in character to its setting (USFS:visual absorption capability; BLM: contrast rating).

Visual Impact - The degree of change in visual resources and viewer response to those resources caused by a development project.

Visual Quality - An evaluative appraisal of the relative excellence of a view or a sequence of views; individual judgements of quality are affected by the values and activity of the viewer; nevertheless, broad consensus can usually be established on the relative quality of different landscapes within the same region; trained observers can predict the consensus based on public testing (USFS:variety class; BLM: scenic quality; SCS: visual resource quality).

Visual Resources - The appearance of the features that make up the visible landscape.